HITACHI

PA **No. 0069**

60SX12B/13K
50UX26B/27K
46UX24B/25K
50SX8B

SERVICE MANUAL

NTSC AP63/63B Chassis

R/C: CLU-952MP

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CAUTION: Before servicing this chassis, it is important that the service technician read the "Safety Precaution" and "Product Safety Notices" in this Service Manual.

SAFETY NOTICE
USE ISOLATION TRANSFORMER WHEN SERVICING

Components having special safety characteristics are identified by a ⚠ on the schematics and on the parts list in this Service Data and its supplements and bulletins. Before servicing the chassis, it is important that the service technician read and follow the "Safety Precautions" and "Product Safety Notices" in this Service Manual.

*For continued x-radiation protection, replace picture tube with original type of Hitachi approved equivalent type.

SPECIFICATIONS AND PARTS ARE SUBJECT TO CHANGE FOR IMPROVEMENT

PROJECTION COLOR TELEVISION

June 1996 HHEA - MANUFACTURING DIVISION
MC-Service

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.

Improperly performed repairs can adversely affect the safety and reliability of the product and may void warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

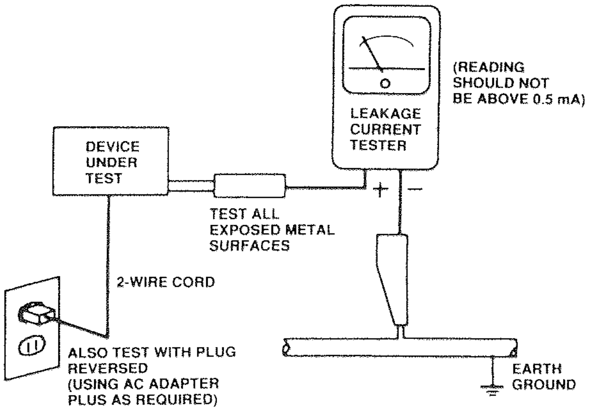
WARNING
Lead in solder used in this product is listed by the California Health and Welfare agency as a known reproductive toxicant which may cause birth defects or other reproductive harm (California Health and Safety Code, Section 25249.5).

When servicing or handling circuit boards and other components which contain lead in solder, avoid unprotected skin contact with solder. Also, when soldering do not inhale any smoke or fumes produced.

This television receiver provides display of television closed captioning in accordance with section 5.119 of the FCC rules.

SAFETY PRECAUTIONS

1. Before returning an instrument to the customer, always make a safety check of the entire instrument, including but not limited to the following items:
   a. Be sure that no built-in protective devices are defective and/or have been deleted during servicing. (1) Protective shields are provided on this chassis to protect both the technician and the customer. Correctly replace all missing protective shields, including any removed for servicing convenience. (2) When reinstalling the chassis and/or other assembly in the cabinet, be sure to put back in place all protective devices, including but not limited to, nonmetallic control knobs, insulating fishpapers, adjustment and compartment covers/shields, and isolation resistor/capacitor networks. **Do not operate this instrument or permit it to be operated without all protective devices correctly installed and functioning. Servicers who defeat safety features or fail to perform safety checks may be liable for any resulting damage.**
   b. Be sure that there are no cabinet openings through which an adult or child might be able to insert their fingers and contact a hazardous voltage. Such openings include, but are not limited to (1) spacing between the picture tube and cabinet mask, (2) excessively wide cabinet ventilation slots, and (3) an improperly fitted and/or incorrectly secured cabinet back cover.
   c. **Antenna Cold Check** — With the instrument AC plug removed from any AC source, connect an electrical jumper across the two AC plug prongs. Place the instrument AC switch in the on position. Connect one lead of an ohmmeter to the AC plug prongs tied together and touch the other ohmmeter lead in turn to each tuner antenna input exposed terminal screw and, if applicable, to the coaxial connector. If the measured resistance is less than 1.0 megohms or greater than 5.2 megohms, an abnormality exists that must be corrected before the instrument is returned to the customer. Repeat this test with the instrument AC switch in the off position.
   d. **Leakage Current Hot Check** — With the instrument completely reassembled, plug the AC line cord directly into a 120V AC outlet. (Do not use an isola-tion transformer during this test.) Use a leakage current tester or a metering system that complies with American National Standards Institute (ANSI) C101.0 Leakage Current for Appliances and Underwriters Laboratories (UL) 1410, (50.7). With the instrument AC switch first in the on position and then in the off position, measure from a known earth ground (metal waterpipe, conduit, etc.) to all exposed metal parts of the instrument (antennas, handle bracket, metal cabinet, screw heads, metallic overlays, con-trol shafts, etc.), especially any exposed metal parts that offer an electrical return path to the chassis. Any current measured must not exceed 0.1 milliamps. Reverse the instrument power cord plug in the outlet and repeat test.

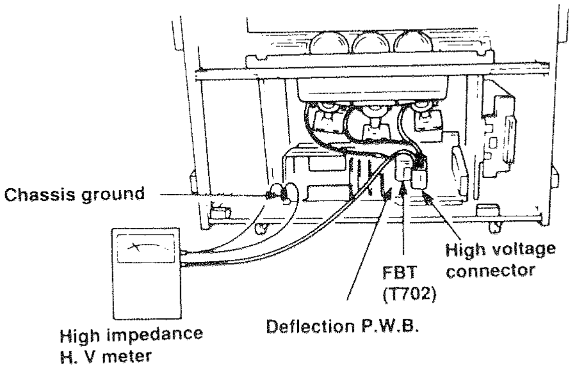

(READING SHOULD NOT BE ABOVE 0.5 mA)
LEAKAGE CURRENT TESTER
DEVICE UNDER TEST
+
−
TEST ALL EXPOSED METAL SURFACES
2-WIRE CORD
ALSO TEST WITH PLUG REVERSED (USING AC ADAPTER PLUS AS REQUIRED)
EARTH GROUND

AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS SPECIFIED HEREIN INDICATE A POTENTIAL SHOCK HAZARD THAT MUST BE ELIMINATED BEFORE RETURNING THE INSTRUMENT TO THE CUSTOMER OR BEFORE CONNECTING THE ANTENNA OR ACCESSORIES.

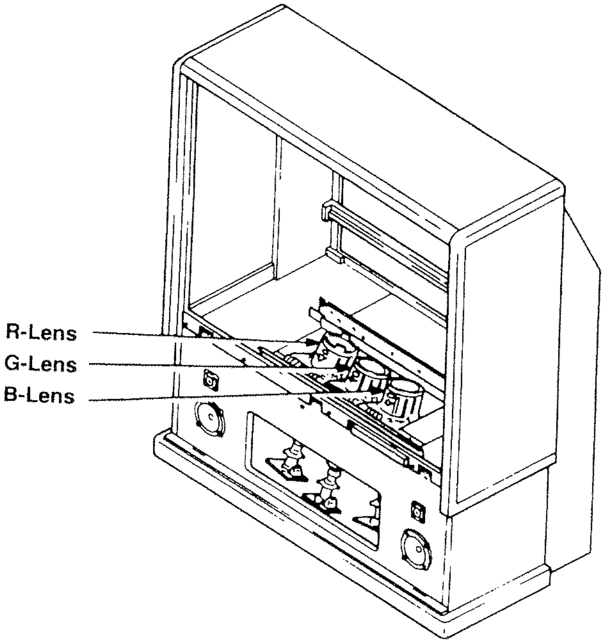
   e. **High Voltage** — This receiver is provided with a hold down circuit for clearly indicating that voltage has increased in excess of a predetermined value. Comply with all notes described in this Service Manual regarding this hold down circuit when servicing, so that this hold down circuit may correctly be operated.
   f. **Serviceman Warning** — With minimum contrast and brightness, operating high voltage in this receiver is lower than **31.6kV.** In case any component having influence on high voltage is replaced, confirm that high voltage with minimum contrast and brightness is lower than **31.6kV.**
   To measure H.V. use a high impedance H.V. meter. Connect (-) to chassis earth and (+) to the CRT anode button. (See the following connection diagram.)

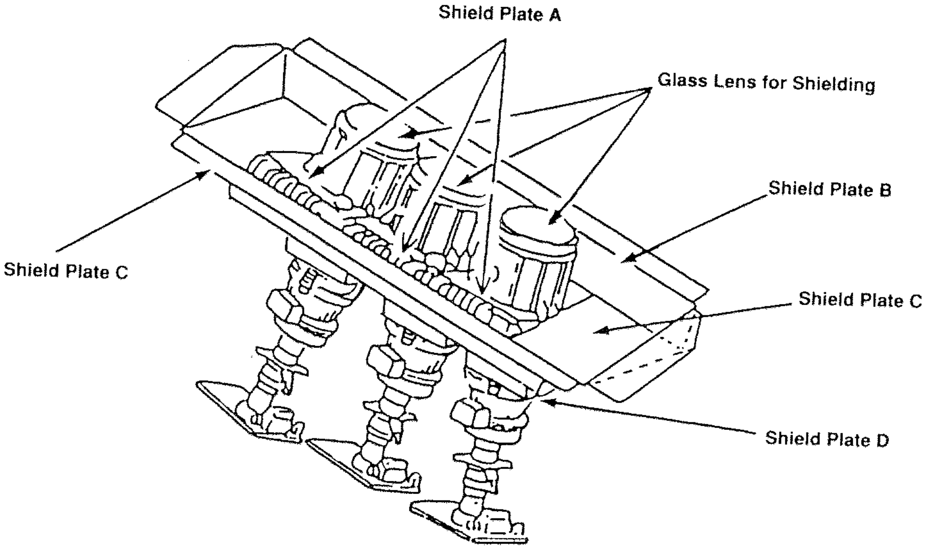
Note: Turn power switch off without fail before the connection to the anode button is made.



g. **X-radiation — TUBE:** The primary source of X radiation in this receiver is the picture tube. The tube utilized for the above mentioned function in this chassis is specially constructed to limit X radiation emissions.
For continued X radiation protection, the replacement tube must be the same type as the original, HITACHI approved type.
When troubleshooting and making test measurements in a receiver with a problem of excessive high voltage, avoid being unnecessarily close to the picture tube and the high voltage component.
Do not operate the chassis longer than is necessary to locate the cause of excessive voltage.

h. **X-Radiation Shield —**
1) This receiver is provided X-ray shield plates for the protection of X-radiation. Do not remove X-ray shield plates A, B, C, or D shown in Fig. 1 unnecessarily, when troubleshooting and/or making test measurements.
2) To prevent X-radiation, after replacement of picture tube and lens, confirm these components to be fixed correctly to bracket and cabinet, and not to be taken off easily.





Detailing X-radiation shield.
Fig. 1

2. Read and comply with all caution and safety-related notes on or inside the receiver cabinet, on the receiver chassis, or on the picture tube.

3. **Design Alteration Warning** — Do not alter or add to the mechanical or electrical design of this TV receiver. Design alterations and additions, including but not limited to, circuit modifications and the addition of items such as auxiliary audio and/or video output connectors, might alter the safety characteristics of this receiver and create a hazard to the user. Any design alterations or additions may void the manufacturer's warranty and may make you, the servicer, responsible for personal injury or property damage resulting therefrom.

4. **Picture Tube Implosion Protection Warning** — The picture tube in this receiver employs integral implosion protection. For continued implosion protection, replace the picture tube only with one of the same type number. Do not remove, install, or otherwise handle the picture tube in any manner without first putting on shatterproof goggles equipped with side shields. People not so equipped must be kept safely away while picture tubes are handled. Keep the picture tube away from your body. Do not handle the picture tube by its neck.

5. **Hot Chassis Warning** — **a.** Some TV receiver chassis are electrically connected directly to one conductor of the AC power cord and may be safety serviced without an isolation transformer only if the AC power plug is inserted so that the chassis is connected to the ground side of the AC power source. To confirm that the AC power plug is inserted correctly, with an AC voltmeter measure between the chassis and a known earth ground. If a voltage reading in excess of 1.0V is obtained, remove and reinsert the AC power plug in the opposite polarity and again measure the voltage potential between the chassis and a known earth ground. **b.** Some TV receiver chassis normally have 85V AC (RMS) between chassis and earth ground regardless of the AC plug polarity. These chassis can be safely serviced only with an isolation transformer inserted in the power line between the receiver and the AC power source, for both personnel and test equipment protection. **c.** Some TV receiver chassis have a secondary ground system in addition to the main chassis ground. This secondary ground system is not isolated from the AC power line. The two ground systems are electrically separated by insulating material that must not be defeated or altered.

6. Observe original lead dress. Take extra care to assure correct lead dress in the following areas: **a.** near sharp edges, **b.** near thermally hot parts — be sure that leads and components do not touch thermally hot parts, **c.** the AC supply, **d.** high voltage and **e.** antenna wiring. Always inspect in all areas for pinched, out-of-plate, or frayed wiring. Do not change spacing between components, and between components and the printed circuit board. Check AC power cord for damage.

7. Components, parts, and/or wiring that appear to have overheated or are otherwise damaged should be replaced with components, parts, or wiring that meet original specifications. Additionally, determine the cause of overheating and/or damage and, if necessary, take corrective action to remove any potential safety hazard.

8. **PRODUCT SAFETY NOTICE** — Many TV electrical and mechanical parts have special safety-related characteristics some of which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified Hitachi service data by shading on schematics and by a (⚠) in the parts list. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part in Hitachi service data parts list might create shock, fire, and/or other hazards. Product safety is under review continuously and new instructions are issued whenever appropriate. For the latest information, always consult the appropriate current Hitachi service literature. A subscription to, or additional copies of Service literature may be obtained at a nominal charge from Hitachi.

SERVICING PRECAUTIONS

CAUTION: Before servicing instruments covered by this service data and its supplements and addenda, read and follow the SAFETY PRECAUTIONS on page 3 of this publication.

NOTE: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions on page 3 of this publication, always follow the safety precautions. Remember: Safety First.

General Servicing Guidelines

1. Always unplug the instrument AC power cord from the AC power source before:
   a. Removing or reinstalling any component, circuit board, module, or any other instrument assembly.
   b. Disconnecting or reconnecting any instrument electrical plug or other electrical connection.
   c. Connecting a test substitute in parallel with an electrolytic capacitor in the instrument.
   Caution: A wrong part substitution or incorrect polarity installation of electrolytic capacitors may result in an explosion hazard.
   d. Discharging the picture tube anode.
2. Test high voltage only by measuring it with an appropriate high voltage meter or other voltage measuring device (DVM, FETVOM, etc.) equipped with a suitable high voltage probe. Do not test high voltage by "drawing an arc." The H.V. Distribution Box has an internal 400MΩ resistor (bleeder resistor) connected from the high voltage to ground. After power is removed from the instrument the high voltage will discharge through the high voltage bleeder resistor. If the tubes have high voltage after power is removed, then the bleeder resistor is defective or the bleeder ground is disconnected.
3. Discharge the picture tube's anode at any of the R, G, or B outputs on the High Voltage distribution box only by (a) first connecting one end of an insulated clip lead to the degaussing or kine aquadag grounding system shield at the point where the picture tube socket ground lead is connected, and then (b) touch the other end of the insulated clip lead to the picture tube high voltage distribution box R, G, or B output, using an insulating handle to avoid personal contact with high voltage.
4. Do not spray chemical on or near this instrument or any of its assemblies.
5. Unless specified otherwise in these service data, clean electrical contacts by applying the following mixture to the contacts with a pipe cleaner, cotton-tipped stick or comparable nonabrasive applicator: 10% (by volume) Acetone and 90% (by volume) isopropyl alcohol (90%-99% strength). **Caution:** This is a flammable mixture. Unless specified otherwise in these service data, lubrication of contacts is not required.
6. Do not defeat any plug/socket B+ voltage interlocks with which instruments covered by this service data might be equipped.
7. Do not apply AC power to this instrument and/or any of its electrical assemblies unless all solid-state device heat sinks are correctly installed.
8. Always connect the test instrument ground lead to the appropriate instrument chassis ground before connecting the test instrument positive lead. Always remove the test instrument ground lead last.
9. Use with this instrument only the test fixtures specified in this service data.
   CAUTION: Do not connect the test fixture ground strap to any heatsink in this instrument.

Electrostatically Sensitive (ES) Devices

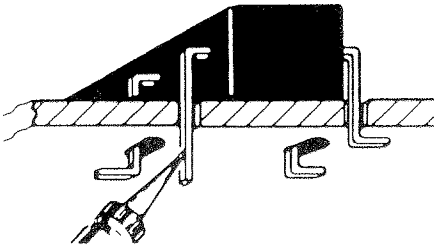
Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive (ES) Devices. Examples of typical ES devices are integrated circuits and some field-effect transistors and semiconductor "chip" components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ES devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ES devices.
4. Use only an anti-static type solder removal device Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ES devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ES devices.
6. Do not remove a replacement ES device from its protective package until immediately before you are ready to install it. (Most replacement ES devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive material.)
7. Immediately before removing the protective material from the leads of a replacement ES device, touch the protective material to the chassis or circuit assembly into which the device will be installed.
   CAUTION: Be sure no power is applied to the chassis or circuit, and observe all other safety precautions.
8. Minimize bodily motions when handling unpackaged replacement ES devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ES device.)

General Soldering Guidelines

1. Use a grounded-tip, low-wattage soldering iron and appropriate tip size and shape that will maintain tip temperature within the range 500°F to 600°F.
2. Use an appropriate gauge of resin-core solder composed of 60 parts tin/40 parts lead.
3. Keep the soldering iron tip clean and well tinned.
4. Thoroughly clean the surfaces to be soldered. Use a small wire-bristle (0.5 inch or 1.25 cm) brush with a metal handle. Do not use freon-propelled spray-on cleaners.
5. Use the following unsoldering technique.
   a. Allow the soldering iron tip to reach normal temperature (500°F to 600°F).
   b. Heat the component lead until the solder melts. Quickly draw away the melted solder with an anti-static, suction-type solder removal device or with solder braid.
   CAUTION: Work quickly to avoid overheating the circuit board printed foil.
6. Use the following soldering technique.
   a. Allow the soldering iron tip to reach normal temperature (500°F to 600°F).
   b. First, hold the soldering iron tip and solder strand against the component lead until the solder melts.
   c. Quickly move the soldering iron tip to the junction of the component lead and the printed circuit foil, and hold it there only until the solder flows onto and around both the component lead and the foil.
   CAUTION: Work quickly to avoid overheating the circuit board printed foil or components.

   d. Closely inspect the solder area and remove any excess or splashed solder with a small wire-bristle brush.



Use Soldering Iron to Pry Leads

IC Removal/Replacement

Some Hitachi unitized chassis circuit boards have slotted holes (oblong) through which the IC leads are inserted and then bent flat against the circuit foil. When holes are the slotted type, the following technique should be used to remove and replace the IC. When working with boards using the familiar round hole, use the standard technique as outlined in paragraphs 5 and 6 above.

Removal

1. Desolder and straighten each IC lead in one operation by gently prying up on the lead with the soldering iron tip as the solder melts.
2. Draw away the melted solder with an anti-static suction-type solder removal device (or with solder braid) before removing the IC.

Replacement

1. Carefully insert the replacement IC in the circuit board.
2. Carefully bend each IC lead against the circuit foil pad and solder it.
3. Clean the soldered areas with a small wire-bristle brush. (It is not necessary to reapply acrylic coating to the areas.)

"Small-signal" Discrete Transistor Removal/Replacement

1. Remove the defective transistor by clipping its leads as close as possible to the component body.
2. Bend into a "U" shape the end of each of three leads remaining on the circuit board.
3. Bend into a "U" shape the replacement transistor leads.
4. Connect the replacement transistor leads to the corresponding leads extending from the circuit board and crimp the "U" with long nose pliers to insure metal to metal contact, then solder each connection.

Power Output Transistor Devices Removal/Replacement

1. Heat and remove all solder from around the transistor leads.
2. Remove the heatsink mounting screw (if so equipped).
3. Carefully remove the transistor from the circuit board.
4. Insert new transistor in circuit board.
5. Solder each transistor lead, and clip off excess lead.
6. Replace heatsink.

Diode Removal/Replacement

1. Remove defective diode by clipping its leads as close as possible to diode body.
2. Bend the two remaining leads perpendicularly to the circuit board.
3. Observing diode polarity, wrap each lead out of the new diode around the corresponding lead on the circuit board.
4. Securely crimp each connection and solder it.
5. Inspect (on the circuit board copper side) the solder joints of the two "original" leads. If they are not shiny, reheat them and, if necessary, apply additional solder.

Fuses and Conventional Resistor Removal/Replacement

1. Clip each fuse or resistor lead at top of circuit board hollow stake.
2. Securely crimp leads of replacement component around stake 1/8 inch from top.
3. Solder the connections.

   CAUTION: Maintain original spacing between the replaced component and adjacent components and the circuit board, to prevent excessive component temperatures.

Circuit Board Foil Repair

Excessive heat applied to the copper foil of any printed cir-cuit board will weaken the adhesive that bonds the foil to the circuit board, causing the foil to separate from, or "lift-off," the board. The following guidelines and procedures should be followed whenever this condition is encountered.

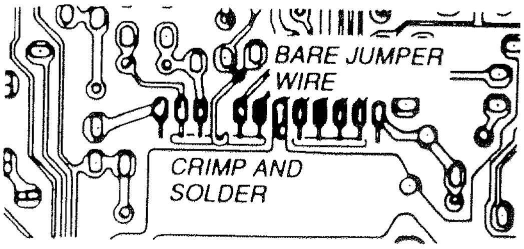
In Critical Copper Pattern Areas

High component/copper pattern density and/or special volt-age/current characteristics make the spacing and integrity of copper pattern in some circuit board areas more critical than in others. The circuit foil in these areas is designated as Critical Copper Pattern and is identified and illustrated in this service data in the section titled Safety Related Copper Pattern (see data in the section titled Safety Related Copper Pattern (see table of contents for page number). Because Critical Copper Pattern requires special soldering techniques to ensure the maintenance of reliability and safety standards, contact your Hitachi personnel.

At IC Connections

To repair defective copper pattern at IC connections, use the following procedure to install a jumper wire on the copper pattern side of the circuit board. (Use this technique only on IC connections.)

1. Carefully remove the damaged copper pattern with a sharp knife. (Remove only as much copper as absolutely necessary.)
2. Carefully scratch away the solder resist and acrylic coating (if used) from the end of the remaining copper pattern.

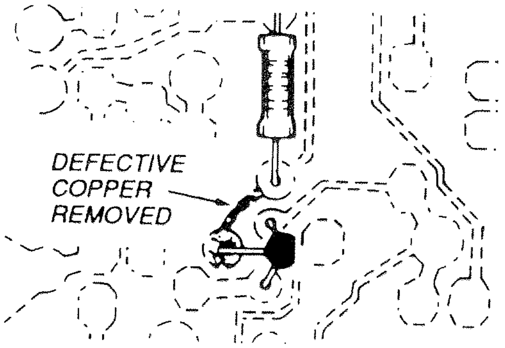


Install Jumper Wire and Solder

3. Bend a small "U" in one end of a small-gauge jumper wire and carefully crimp it around the IC pin. Solder the IC connection.
4. Route the jumper wire along the path of the cut-away copper pattern and let it overlap the previously scraped end of the good copper pattern. Solder the overlapped area, and clip off any excess jumper wire.

At Other connections

Use the following technique to repair defective copper pattern at connections other than IC Pins. This technique involves the installation of a jumper wire on the component side of the circuit board.



Insulated Jumper Wire

1. Remove the defective copper pattern with a sharp knife. Remove at least 1/4 inch of copper, to ensure that a hazardous condition will not exist if the jumper wire opens.
2. Trace along the copper pattern from both sides of the pattern break and locate the nearest component that is directly connected to the affected copper pattern.
3. Connect insulated 20-gauge jumper wire from the lead of the nearest component on one side of the pattern break to the lead of the nearest component on the other side. Carefully crimp and solder the connections.

   CAUTION: Be sure the insulated jumper wire is dressed so that it does not touch components or sharp edges.

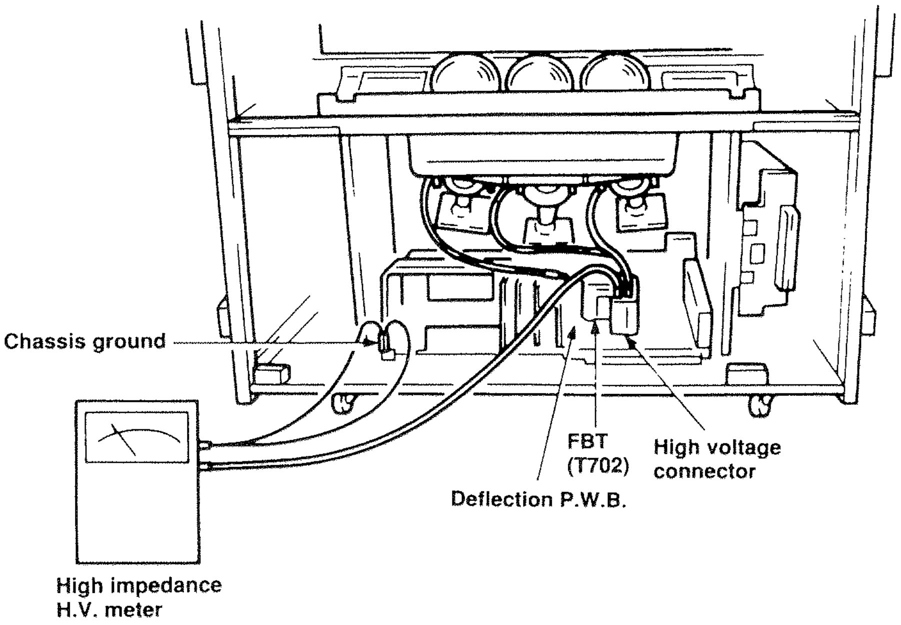
Frequency Synthesis (FS) Tuning Systems

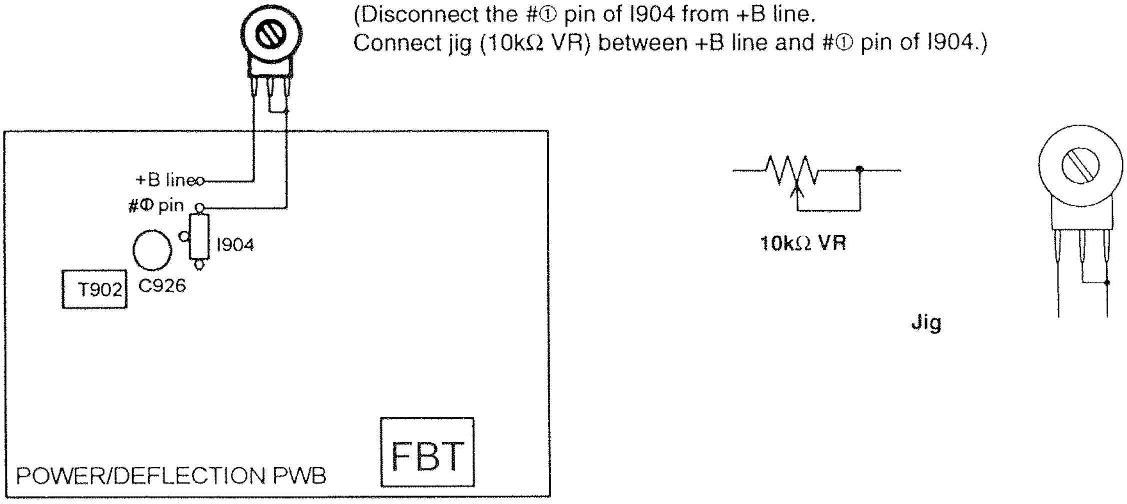
1. Always unplug the instrument AC power cord before disconnecting or reconnecting FS tuning system cables and before removing or inserting FS tuning system modules.
2. The FS tuner must never be disconnected from the FS tuning control module while power is applied to the instrument.
3. When troubleshooting intermittent problems that might be caused by defective cable connection(s) to the FS tuning system, remove the instrument AC power as soon as the defective connector is found and finish confirming the bad connection with a continuity test. This procedure will reduce the probability of electrical overstress of the FS system semi-conductor components.

TECHNICAL CAUTIONS

High Voltage limiter circuit operation check.

1. Turn off TV and connect jig as shown in Figure 2. Adjust jig fully counter-clockwise for minimum resistance.
2. Set the AC input to 120V AC and turn on TV.
3. Confirm test pattern on CRT is a usable picture, then slowly adjust jig until the picture disappears and TV shuts down.
4. When the limiter circuit is operating properly, High Voltage will be less than 37.0kV at 0.6mA when TV shuts down.
5. Turn off set immediately after checking circuit operation.
6. Unplug set for one minute to reset shutdown circuit. Remove jig and voltmeter.


Chassis ground
FBT
(T702)
High voltage
connector
Deflection P.W.B.
High impedance
H.V. meter


(Disconnect the #① pin of I904 from +B line.
Connect jig (10kΩ VR) between +B line and #① pin of I904.)

+B line
#① pin
I904
T902
C926
FBT
POWER/DEFLECTION PWB
10kΩ VR
Jig

Fig. 2 Deflection/Power Supply P.C.B.

SPECIFICATIONS

Model:

60SX12B	60SX13K
50UX26B	50UX27K
46UX24B	46UX25K
50SX8B	

Cathode-Ray Tube: 80° deflection 6.9 inch

60SX12B/13K, 50SX8B, 50UX26B/27K	46UX24B/25K
P16LGD00RFA(R),	P16LEN00RFA(R),
P16LGD00HLA(G),	P16LEN00HLA(G),
P16LGD00BMB(B)	P16LEN00BMB(B)

Power Input: 120 volts AC, 60Hz

Power Consumption:
253 watts - Maximum
(50UX26B/27K, 46UX24B/25K)
257 watts - Maximum
(60SX12B/13K, 50SX8B)

173 watts - Operating
(50UX26B/27K, 46UX24B/25K)

176 watts - Operating
(60SX12B/13K, 50SX8B)

Antenna Impedance: 75 ohm Unbalanced
VHF/UHF/CATV

Receiving Channel:

	CH
VHF	2-13
EXT. Mid	(A-2)-(A-1),4^+
CATV Mid	A-I
CATV Super	J-W
CATV Hyper	(W+29)-(W+53)

Intermediate Frequency:
Picture I-F Carrier 45.75 MHz
Sound I-F Carrier 41.25 MHz
Color Sub Carrier 42.17 MHz

Video Input: 1 Voltp-p 75 ohm

Video Output: 1 Voltp-p 75 ohm

Audio Input: 0.47 volt rms, 47 k ohm

Stereo Audio Output: 0.47 volt rms, 1 k ohm

Audio Output Power: Front — 10 watts rms per channel, 8 ohm impedance.
Max output — 15 watts
Rear — 5 watts per channel, 8 ohm impedance.
Max output — 7 watts.
Center — 7 watts per channel.

Anode Voltage: 30.0 kV
(Zero Beam Current)

Brightness:
500 ft-Nominal - (46UX24B/25K)
420 ft-Nominal - (50UX26B/27K)
380 ft-Nominal - (50SX8B)
250 ft-Nominal - (60SX12B/13K)
(Peak White)

Speakers:
2 Woofers - 5 inch (12 cm) round
2 Tweeters - 2 inch (5 cm) round
1 Full Range - 3x5 inch (7.5x12cm)

Dimension:	**46UX24B/25K**	**50UX26B/27K**
Height (in.)	49-1/8	51-13/16
Width (in.)	40	43-3/16
Depth (in.)	22-3/8	21-1/4
Weight (lbs.)	198	228

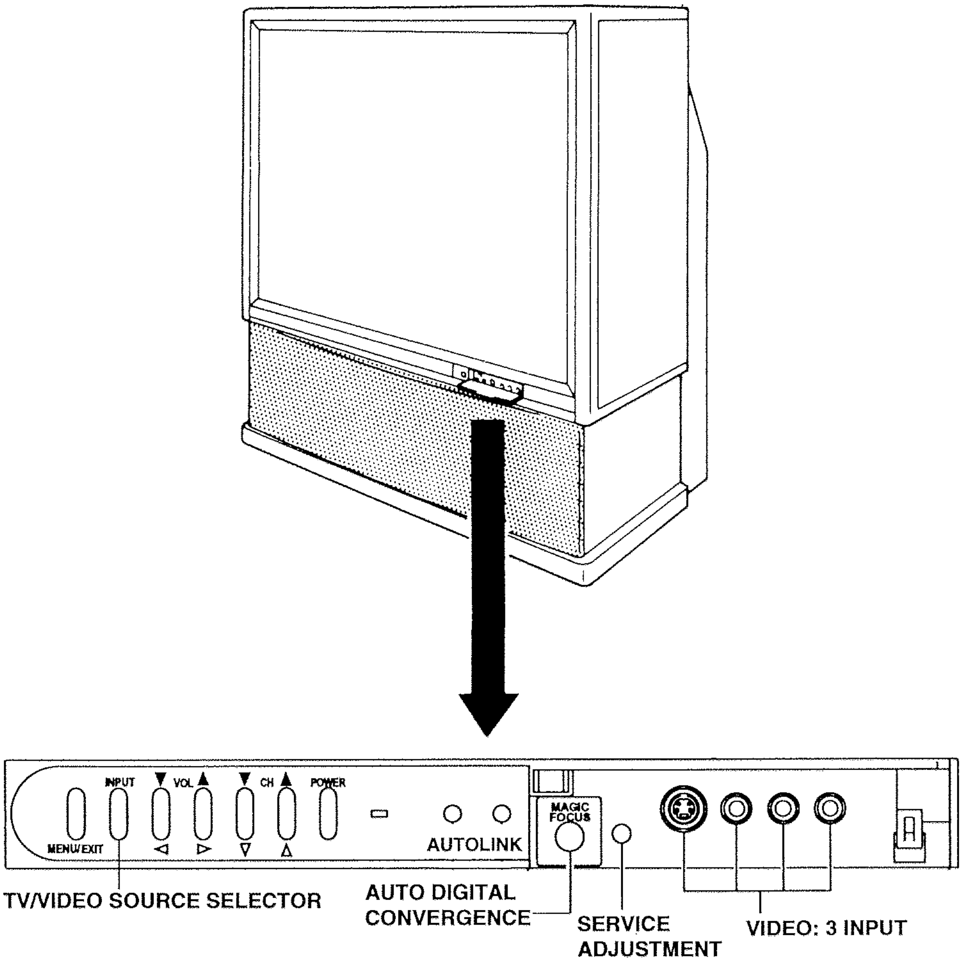
	60SX12B/13K	**50SX8B**
Height (in.)	61-7/16	51-13/16
Width (in.)	51-1/4	43-3/16
Depth (in.)	27	21-1/4
Weight (in.)	362	228

Circuit Board Assemblies:
CPT (B) P.C.B.
CPT (G) P.C.B.
CPT (R) P.C.B.
3 Line Comb. P.C.B. (except SX models)
Sensor Distribution P.C.B.
Signal P.C.B.
Signal Sub P.C.B.
Power/Deflection P.C.B.
Control P.C.B.
Surround A P.C.B.
Surround B P.C.B.
Graphic Eq. P.C.B.
Terminal P.C.B.
V.M. P.C.B.

CIRCUIT PROTECTION

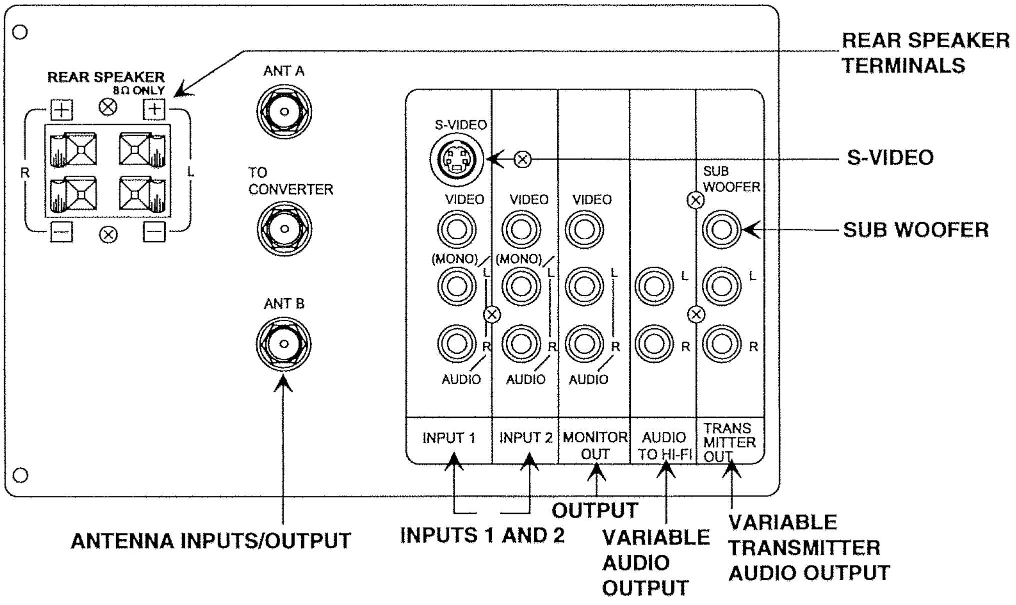
Fuse (or Device)	Circuit Protected	Physical Location
F902 5A/125V AC	Main Fuse	Power/Defl. Circuit Board
F903 5A/125V DC (LITTELFUSE)	Main Fuse	Power/Defl. Circuit Board
F905 4A/125V DC (LITTELFUSE)	26V Supply (Audio)	Power/Defl. Circuit Board
F906 1.6A/125V DC	115V (+B) Supply	Power/Defl. Circuit Board

GENERAL INFORMATION


INPUT
VOL
CH
POWER
MENU/EXIT
AUTOLINK
MAGIC FOCUS
TV/VIDEO SOURCE SELECTOR
AUTO DIGITAL CONVERGENCE
SERVICE ADJUSTMENT
VIDEO: 3 INPUT

Control Panel
Fig. 3

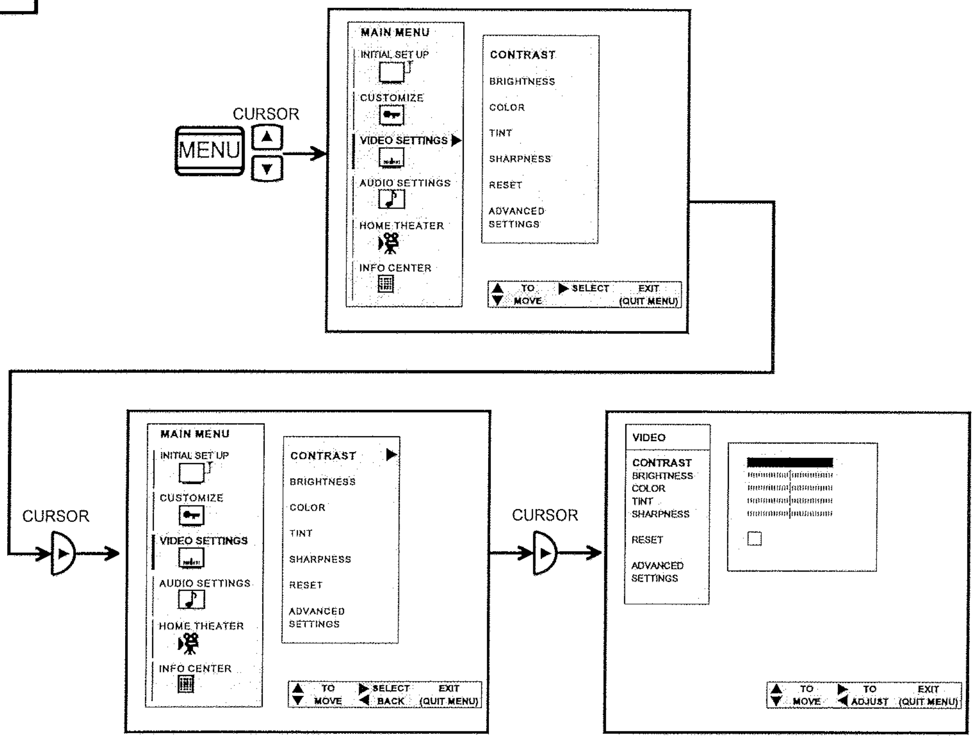
REAR SPEAKER TERMINALS


REAR SPEAKER 8Ω ONLY
R
L
ANT A
TO CONVERTER
ANT B
S-VIDEO
VIDEO
(MONO)
AUDIO
SUB WOOFER
INPUT 1
INPUT 2
MONITOR OUT
AUDIO TO HI-FI
TRANS MITTER OUT
REAR SPEAKER TERMINALS
S-VIDEO
SUB WOOFER
ANTENNA INPUTS/OUTPUT
INPUTS 1 AND 2
OUTPUT
VARIABLE AUDIO OUTPUT
VARIABLE TRANSMITTER AUDIO OUTPUT

Rear Connections Panel
Fig. 4

VIDEO SETTINGS

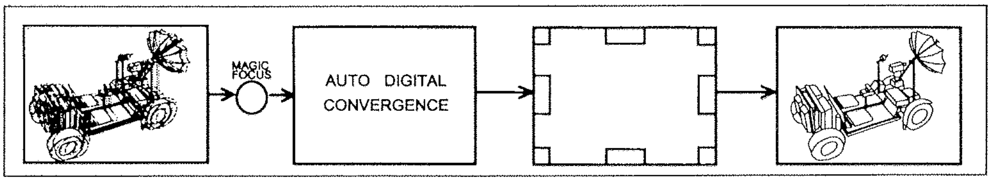
Select VIDEO SETTINGS to adjust picture settings and improve picture quality.


CURSOR
MENU
MAIN MENU
INITIAL SET UP
CUSTOMIZE
VIDEO SETTINGS
AUDIO SETTINGS
HOME THEATER
INFO CENTER
CONTRAST
BRIGHTNESS
COLOR
TINT
SHARPNESS
RESET
ADVANCED SETTINGS
▲▼ TO MOVE
▶ SELECT
◀ BACK
EXIT (QUIT MENU)
CURSOR
CURSOR
VIDEO
CONTRAST
BRIGHTNESS
COLOR
TINT
SHARPNESS
RESET
ADVANCED SETTINGS
▶ TO ADJUST

Use the CURSOR ▲ or ▼ to highlight the function to be adjusted.
Press CURSOR ◀ or ▶ to adjust the function.
Use CURSOR ▲ or ▼ to highlight RESET or ADVANCED SETTINGS, then CURSOR ◀ to return to previous menu.
Press EXIT to quit menu.

CONTRAST	Use this function to change the contrast between black and white levels in the picture. This adjustment will only affect the picture when PICTURE SETTINGS AI is OFF.
BRIGHTNESS	Use this function to adjust overall picture brightness.
COLOR	Use this function to adjust the level of color in the picture.
TINT	Use this function to adjust flesh tones so they appear natural.
SHARPNESS	Use this function to adjust the amount of fine detail in the picture.
RESET	When RESET is selected, press CURSOR ▶ to return video adjustments to factory preset conditions.

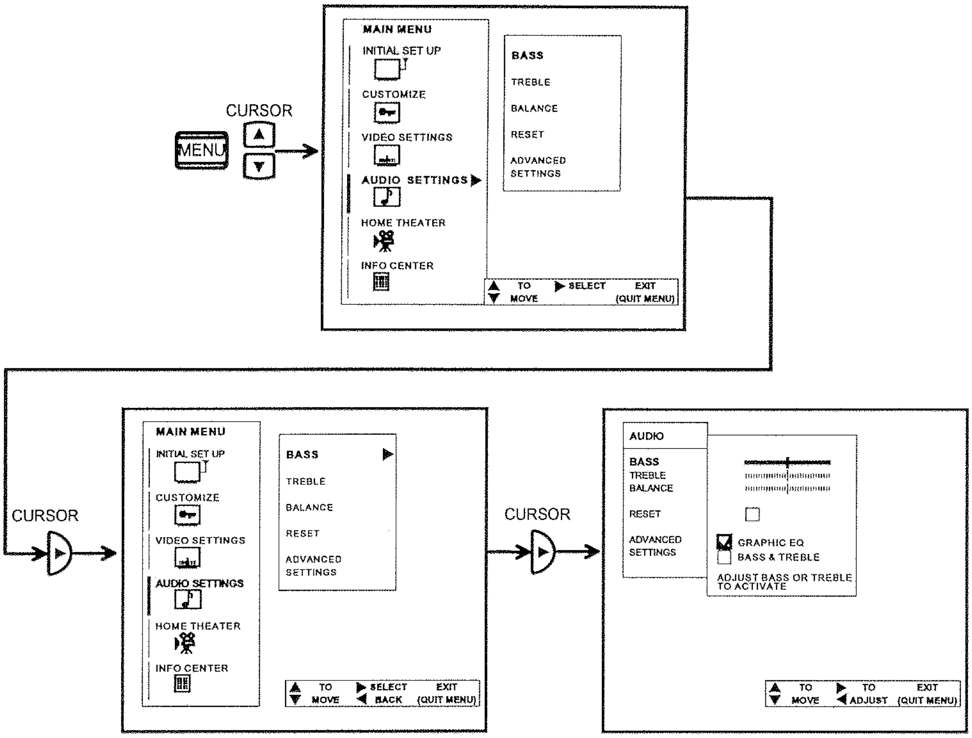
Press the front panel MAGIC FOCUS button momentarily for auto setup.


MAGIC FOCUS
AUTO DIGITAL CONVERGENCE

To adjust manually, press and hold the MAGIC FOCUS button until CENTER MODE or STATIC MODE is displayed. Press ENTER on the remote to select red or blue. Green is stationary. Use the cursor buttons to adjust. Center mode only adjusts the center section. Static mode adjusts the entire screen. **Note:** This new data is in RAM memory only and will be lost if the MAGIC FOCUS button is pressed again.

AUDIO SETTINGS

Select AUDIO SETTINGS to adjust the TV to your preference and to improve the sound quality.


CURSOR
MENU
MAIN MENU
INITIAL SET UP
CUSTOMIZE
VIDEO SETTINGS
AUDIO SETTINGS ▶
HOME THEATER
INFO CENTER
BASS
TREBLE
BALANCE
RESET
ADVANCED SETTINGS
▲▼ TO MOVE ▶ SELECT EXIT (QUIT MENU)
CURSOR
MAIN MENU
INITIAL SET UP
CUSTOMIZE
VIDEO SETTINGS
AUDIO SETTINGS
HOME THEATER
INFO CENTER
BASS ▶
TREBLE
BALANCE
RESET
ADVANCED SETTINGS
▲▼ TO MOVE ▶ SELECT ◀ BACK EXIT (QUIT MENU)
CURSOR
AUDIO
BASS
TREBLE
BALANCE
RESET
ADVANCED SETTINGS
GRAPHIC EQ
BASS & TREBLE
ADJUST BASS OR TREBLE TO ACTIVATE
▲▼ TO MOVE ▶◀ TO ADJUST EXIT (QUIT MENU)

Use CURSOR ▲ or ▼ to highlight the function to be adjusted.
Press CURSOR ◀ or ▶ to adjust the function.
Use CURSOR ▲ or ▼ to highlight RESET or ADVANCED SETTINGS, then CURSOR ◀ to return to previous menu.
Press EXIT to quit menu.

BASS

This function controls the low frequency audio to all speakers.

TREBLE

This function controls the high frequency audio to all speakers.

BALANCE

This function will control the left to right balance of the TV internal speakers, the AUDIO TO HI FI output, and TRANSMITTER OUT output (Use the test tone volume levels to control balance when in "Surround-Dolby" Mode).

RESET

When RESET is selected, press CURSOR ▶ to return audio adjustments to factory preset conditions.

CAUTIONS WHEN CONNECTING/DISCONNECTING THE HV CONNECTOR

Perform the following when the HV connector (anode connector) is removed or inserted for CPT replacement, etc.

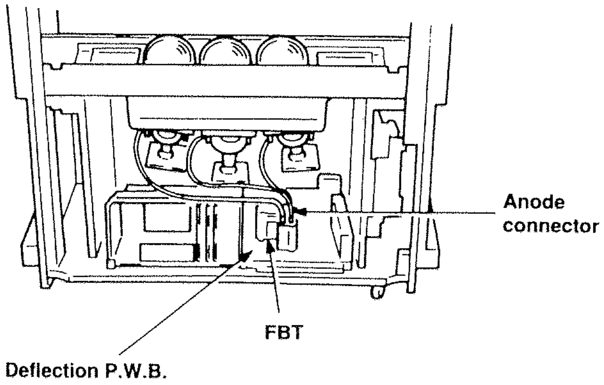

Anode connector
FBT
Deflection P.W.B.

Fig. 5

During Removal

1. Insert a small flat-bladed screwdriver (adjustment screwdriver: 5-7 mm wide and 0.2-0.3 mm thick) into section Ⓐ in Fig. 6 and then push it in the direction of arrow Ⓑ. The lock will release with a click. (The state in Fig. 8 (1) will change to that in Fig. 8 (2).)

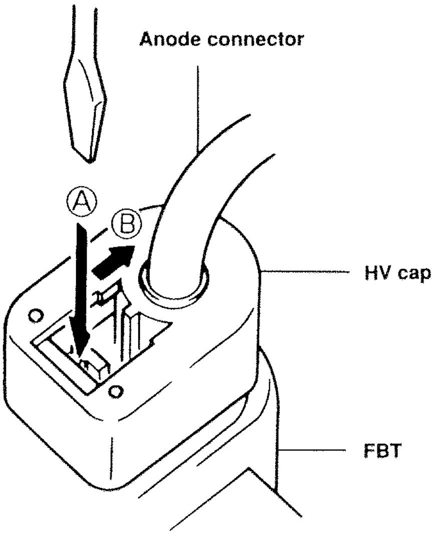

Anode connector
Ⓐ
Ⓑ
HV cap
FBT

Fig. 6

2. Remove the HV cap and remove the anode connector (Fig. 7).

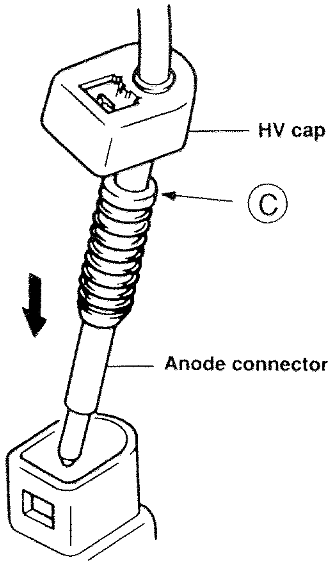
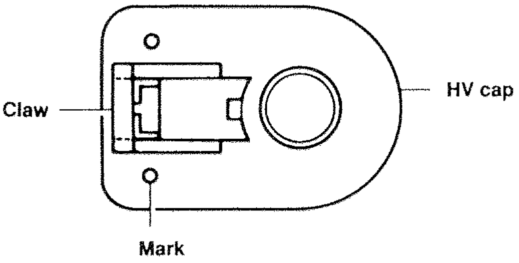

HV cap
Ⓒ
Anode connector

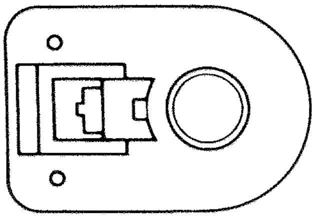
Fig. 7

During Insertion

1. Insert the anode connector deep into the FBT (to section Ⓒ in Fig. 7) and then push the HV cap into the FBT until it clicks.
2. Make sure the connector is securely inserted. (Check that the claw is at the mark on the HV cap shown as in Fig. 8 (1).)


Claw
HV cap
Mark

(1) Lock on
(When connector is inserted)



(2) Release
(When connector is removed)

Fig. 8

ADJUSTMENT INSTRUCTION

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1. ASSEMBLED PWB ADJUSTMENT

1.1 Memory initialization

Adjustment procedure

(1) Press memory initialize key using the R/C.
(2) Check the OSD according to the chassis type.

Initialize OSD (Memory Switches)

MEMORY SWITCH

PIP 1	0	[✓ 1]
PIP 2	0	[✓ 1]
POWER ON1	[✓ 0]	1
POWER ON2	0	[✓ 1]
AUX 3	0	[✓ 1]
SUR 1	0	[✓ 1]
SUR 2	0	[✓ 1]
MAGIC F.	0	[✓ 1]
W. CONT	0	[✓ 1]
S. CONT	0	[✓ 1]
ANT	0	[✓ 1]
CTV/PTV	0	[✓ 1]
D. BASS	0	[✓ 1]
3D Y/C	[✓ 0]	1
NOTCH	[✓ 0]	1

PIP POSITION HP 0111 (0000-1111)
VP 0111 (0000-1111)
SHOOT BAL. ADJ 37 (0-63)
SUB BRIGHT ADJ 127 (63-191)

CHASSIS TYPE TABLE

This table explains the chassis specification for the memory switch arrangement.

	AP63		AP63B	
PIP 1	0	[✓ 1]	0	[✓ 1]
PIP 2	0	[✓ 1]	[✓ 0]	1
POWER ON1	0	[✓ 1]	0	[✓ 1]
POWER ON2	[✓ 0]	1	[✓ 0]	1
AUX 3	0	[✓ 1]	0	[✓ 1]
SUR 1	0	[✓ 1]	0	[✓ 1]
SUR 2	0	[✓ 1]	0	[✓ 1]
MAGIC F.	0	[✓ 1]	0	[✓ 1]
W. CONT	0	[✓ 1]	0	[✓ 1]
S. CONT	0	[✓ 1]	0	[✓ 1]
ANT	0	[✓ 1]	0	[✓ 1]
CTV/PTV	0	[✓ 1]	0	[✓ 1]
D. BASS	0	[✓ 1]	0	[✓ 1]
3D Y/C	[✓ 0]	1	0	[✓ 1]
NOTCH	[✓ 0]	1	[✓ 0]	1

(3) Press Memory Initialize key of the R/C one more time and check that the set is returned to factory shipping conditions.

Note: The TV will be set to factory shipping conditions. Do not unplug set or press any buttons during this operation.

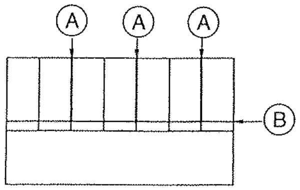
1.2 Comb filter operation check

Adjustment preparation

(1) Receive the color bar signal at the regular tuning point.
(2) Set the contrast control to MAX and the other controls to center.
(3) Set the AI to OFF.

Adjustment procedure

(1) Check that between the color bars there are line dots every second color bar as shown in the drawing.



Check Ⓐ and Ⓑ line dots.

	AP63	AP63B
	Dots	Dots
Ⓐ	X	None
Ⓑ	None	None

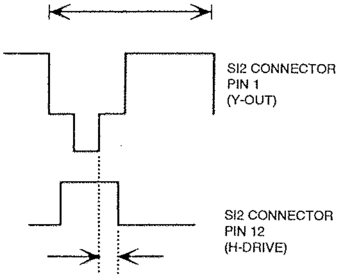
1.3 Horizontal coarse AFC adjustment (R339)

Adjustment preparation

(1) Receive the reverse cross-hatch pattern signal. (Cross-hatch lines are black.)
(2) Connect the oscilloscope to SI2 connector pin ① (Y-out) and pin ⑫ (H-Drive).

Adjustment procedure

(1) Adjust R339 (AFC) for 13µs delay between pin① and ⑫.



13µs +/- 0.5µs

1.4 Sub-picture position adjustment

Adjustment preparation

(1) Select signal on main picture.
(2) Video settings have to be at normal condition.
(3) Select the single PIP mode.

Adjustment procedure

(1) Press the Memory Initialize key on the R/C.
(2) Press the ▼▲ buttons to select the PIP position mode.
(3) Adjust the VP (vertical) and HP (horizontal) position using the◀▶buttons.
(4) Press the Memory Initialize key of the R/C to store the value in memory.
(5) Select single PIP mode and shift the sub-picture using the 'shift' button. Distance between PIP and edge of screen should be equal when shifted. If it is not, repeat (1) ~ (5).

Note: Check the position of Multi PIP mode. Check the right edge of the sub-pictures for MV-4 and the left and bottom edge for MV-7 to make sure there is no separation between the Multi PIP and the edge of the screen.

2. FINAL ASSEMBLY ADJUSTMENT

2.1 Focus adjustment

Adjustment preparation

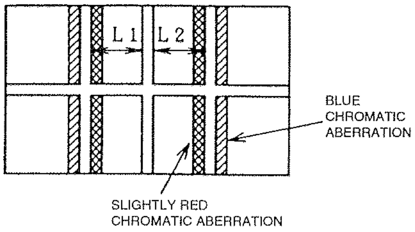
(1) The set can face in any direction, west, east, north or south.
(2) Receive the cross-hatch pattern signal.
CONTRAST: CENTER
BRIGHTNESS: -16 (-8 position shown on display)
(3) The electrical focus adjustment should have been completed.
(4) The centering DY inclination should have been adjusted.

Adjustment procedure

(1) Loosen the fixing screw on the lens cylinder so that the lens cylinder can be turned. (Be careful not to loosen too much. If it is loosened too much, rattling when tightening becomes greater and the focus may drift.) After completing steps (5), (6) and (7) below, tighten the fixing screws for each lens with a torque of 7-12kg/cm.
(2) Apply covers to 2 of R, G and B lenses, and project a single color on the screen and adjust in sequence. (The adjustment order of R, G and B is only an example.)
(3) For each of the R, G and B lenses, observe the color aberration generated on the outer circumference of the cross-hatch bright line at the center section ± 3 pitches vertically and horizontally from the center.
(4) If the lens adjustment knob is turned clockwise, viewed from the front, the color aberration changes as follows.

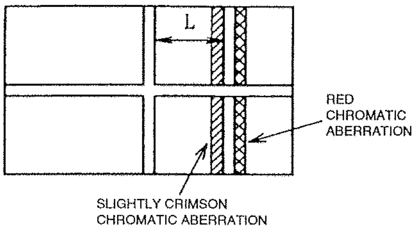
Lens	Change of color aberration
R lens	Red → Crimson
G lens	Blue → Red
B lens	Purple → Green

(5) In case of G lens, set to the point where the chromatic aberration switches from blue to red. If the chromatic aberration appearing all over the screen is not the same, observe the horizontal bright line at the center of the screen and set to the position where red chromatic aberration slightly appears inside and blue outside (reference value: 1-3mm) within the cross-hatch pitches specified in Table below. When the red chromatic aberration appearing at both sides of the bright line is not equal, observe the side with larger chromatic aberration when adjusting.



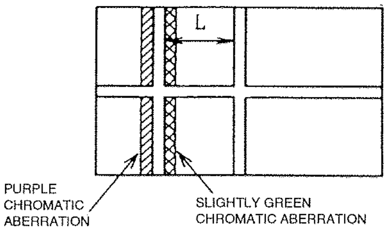
Set Size	Pitch between L1 & L2
46"	3.0 cross-hatch pitches
50"	3.0 cross-hatch pitches
60"	3.0 cross-hatch pitches

(6) In case of R lens, set to the position where the chromatic aberration changes from red to crimson.
As shown below, observe the horizontal bright line at the center and set to the position where the crimson chromatic aberration slightly appears inside and red outside (reference value: 1-3mm) within the cross-hatch pitches specified in Table next column.



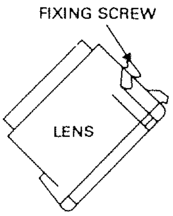
Set Size	Pitch between L
46"	3.0 cross-hatch pitches
50"	3.0 cross-hatch pitches
60"	3.0 cross-hatch pitches

(7) In case of B lens, set to the position where the chromatic aberration changes from purple to green. As shown below, observe the horizontal bright line at the center and set to the position where green chromatic aberration slightly appears inside and purple outside (reference value: 1-3mm) within the cross-hatch pitches specified in table below.

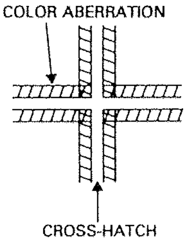

L
PURPLE CHROMATIC ABERRATION
SLIGHTLY GREEN CHROMATIC ABERRATION

Set Size	Pitch between L
46"	3.0 cross-hatch pitches
50"	3.0 cross-hatch pitches
60"	3.0 cross-hatch pitches

Notes: (1) Fixing screw



(2) Color aberration



(3) Since the G light is very important for picture quality and performance, pay special attention in its adjustment.

Note: Be careful not to touch the lens with your fingers when adjusting.

(4) For red, setting to the center between red and crimson is optimum.
(5) For blue, setting to the center between purple and green is optimum.

2.2 White balance adjustment

(1) Screen adjustment
(2) High brightness white balance
(3) Low brightness white balance

Screen adjustment VRs	Drive adjustment VRs
Red: Focus Pack	Red: R873
Green: Focus Pack	Green: R843
Blue: Focus Pack	

Adjustment preparation

(1) Start adjustment 20 minutes or more after the power is turned on.
(2) The vertical incident illumination on the screen should be 20 lux or less.
(3) Set the video settings (contrast: max, others: center) to standard condition.
(4) For low brightness white balance adjustment, input a white raster signal level of 0.300Vp-p (Video input level).
(5) For high brightness white balance adjustment, input a white raster signal level of 0.715Vp-p (Video input level).
(6) Set the drive adjustment VRs (red and green) to 12 ~ 2 o'clock position.
(7) Turn the screen adjustment VRs (red, green, blue) fully counter-clockwise.
(8) Set video advanced setting white control to warm position.
(9) Set the S301 switch to the front as viewed from the front of the signal sub P.W.B. (Set to SERVICE side.)

Adjustment procedure

(1) Gradually turn the screen adjustment VRs (red, green, blue) clockwise and set them where the red, green and blue slightly bright lines just appear evenly on the screen.
(2) Return S301 to the NORMAL side.
(3) Select the input signal for high brightness. (video level = 0.715Vp-p ± 0.015).
(4) Adjust the high brightness white balance using the drive adjustment VRs (red, green).
(5) Select the input signal for low brightness (video level = 0.300Vp-p ± 0. 015).
(6) Adjust the low brightness white balance using the screen adjustment VRs (red, green, blue). (Visually adjust.)
(7) Check that high brightness white balance is obtained. If it does not, return to step (5).

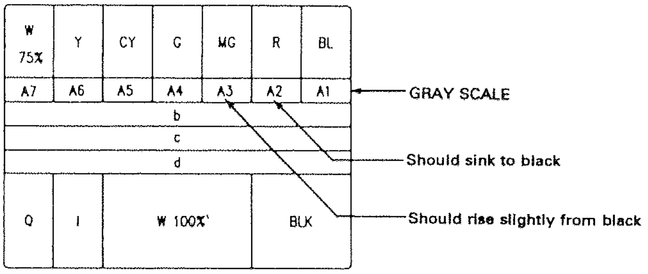
Note: When adjusting the white balance, if the horizontal single raster is to be obtained using S301, check that the screen adjustment VRs are turned fully counterclockwise. Since the phosphorescent surface of the CRT is likely to be burnt, be careful.

White balance: 7500°K+0MPCD
Color coordinate: X.....0.301
Y.....0.310

2.3 Sub brightness adjustment

Adjustment preparation

(1) Start adjustment 20 minutes or more after the power is turned on. Receive the color bar signal.
(2) Set the contrast and color controls to minimum.
(3) The vertical incident illumination on the screen should be 20 lux or less.



Adjustment procedure

(1) Press the memory initialize key on the R/C.
(2) Press the ▲ button to select SUB-BRIGHTNESS mode.
(3) Use the ◀▶ buttons to increase or decrease so that points A1 and A2 sink to black and A3 rises slightly above it. (Visually adjust)
(4) After above adjustment, SUB-BRIGHTNESS will have value between 63 and 191. Adjustment is now complete.
(5) After adjustment is done, press the memory initialize key on the R/C one more time and the data is stored in memory.

Note: When selecting SUB-BRIGHTNESS mode the μcon sets the CONTRAST and COLOR to min. automatically but make sure that the other conditions are center. Directly observe the screen by eye without using a mirror.

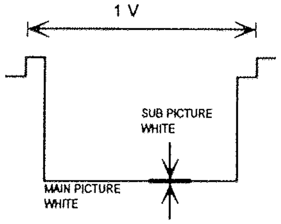
2.4 Sub picture white balance adjustment (R029, R026, R024)

Adjustment preparation

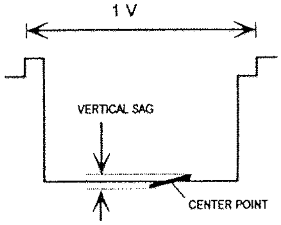
(1) Start adjustment after power is on for 20 minutes.
(2) Use a white raster signal for adjustment.
(3) Press "FREEZE" on the remote control and select 'single' freeze mode to display the sub picture.
(4) Set contrast to center, brightness minimum, AI off.

Adjustment procedure

(1) Connect oscilloscope to P802 and adjust R029 to match blue level of main and sub pictures.
(2) Repeat for P832 and R026 green, P862 and R024 for red.



Note: If the sub picture has a signal sag, adjust level at center point.



2.5 Surround operation check

Adjustment preparation

Input the following audio signals to the audio input of the VIDEO INPUT terminals.

•When checking surround:
L CH: 400Hz sine wave 475mVrms
R CH: 5kHz sine wave 475mVrms

•Set the AUDIO ADVANCED SETTING for INT. SPEAKERS ON.

•Set the volume controls of FRONT, CENTER and REAR to around their centers.

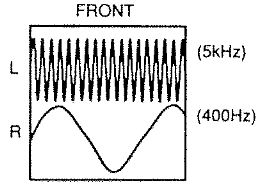
•Set the BASS, TREBLE and BALANCE to TYP.

Note: Front waveform: Front speaker output of the set
Rear waveform: Rear speaker output of the set

2.5.1. Surround off check

Adjustment procedure

(1) Set to SURROUND: OFF and check that the waveform shown below is obtained.

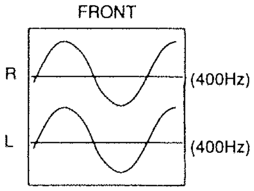


Note: The rear and center will have no output.

2.5.2. Surround off/monaural check

Adjustment procedure

Check that the following waveform is obtained. The amplitudes of 2 channels are equal.



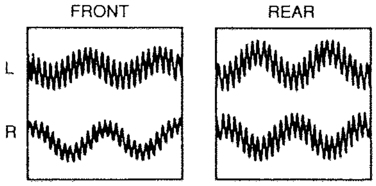
Note: Monaural check can be omitted. The rear and center have no output.

2.5.3. Matrix surround check

Adjustment procedure

(1) Set to SURROUND; MATRIX.

- Check that the following waveforms are obtained.
- Front: Check that the phases of R and L are different and 400Hz is superimposed on 5kHz. The amplitudes of R and L are different.
- Rear: Check that the phases of R and L are opposite and 400Hz is superimposed on 5kHz. The amplitudes of R and L are different.



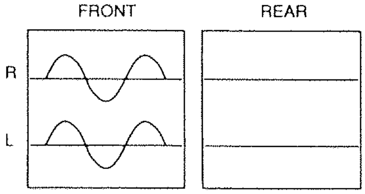
Note: Center has no output.

2.5.4. Matrix surround/monaural check

Adjustment procedure

Check that the following waveforms are obtained.

- Front: R and L waveforms are almost equal.
- Rear: R and L waveforms are almost zero.



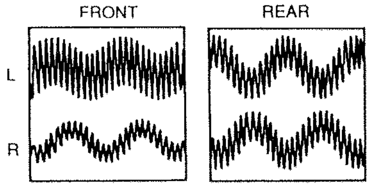
Note: Center has no output.

2.5.5. Hall surround check

Adjustment procedure

(1) Set to SURROUND: HALL.

- Front: Check that the phases of R and L signals are different and 400Hz is superimposed on 5kHz.
- Rear: Check that the R and L are opposite and 400Hz is superimposed on 5kHz. The R and L amplitudes are equal.



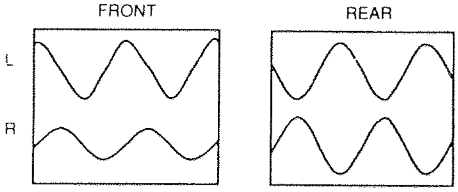
Note: Amplitude levels of front R and L are not even depending on the P.W.B. Center has no output.

2.5.6. Hall surround/monaural check

Adjustment procedure

Check that the following waveforms are obtained.

- Front: The phases of R and L are different. The amplitudes are different.
- Rear: The phases of R and L are opposite. The amplitudes of R and L are equal.



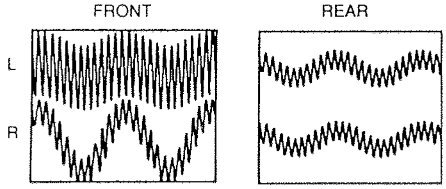
Note: The monaural check can be omitted. Amplitude levels of front R and L are not even depending on the P.W.B. Center has no output.

2.5.7. Dolby surround check

Adjustment procedure

(1) Set to SURROUND: DOLBY

- Check that the following waveforms are obtained.
- Front: 400Hz is superimposed on 5kHz.
- Rear: R and L are the same signal and 400Hz is superimposed on 5kHz.



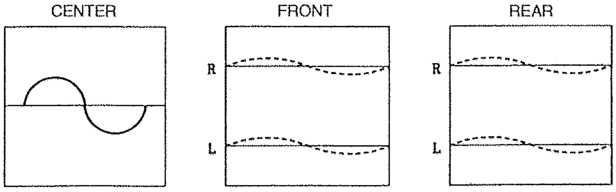
Note: MODE: PRO-LOGIC (NORMAL)

2.5.8. Dolby surround/monaural check

Adjustment procedure

Check that the following waveforms are obtained.

- Front: (Almost no output from both R and L.)
- Center: Same as the audio input signal.
- Rear: (Almost no output from both R and L.)



2.6. Shoot balance adjustment (R333)

Adjustment preparation

(1) Receive the reverse cross-hatch pattern signal. (Cross-hatch lines are black.)

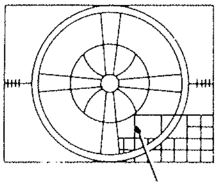
(2) Set the video condition to factory reset.

Adjustment procedure

(1) Press the memory initialize key of the R/C.

(2) Press the ▲ button and select SHOOT BALANCE mode.

(3) Using the ◀ ▶ buttons, gradually adjust so the widths of pre-shoot and over-shoot of the vertical line (black) shown in the circle pattern are balanced. (Visually adjust)



Note: Directly observe the screen by eye without using a mirror.

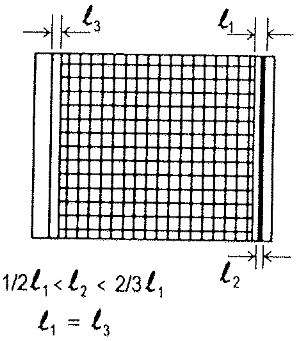
2.7 Horizontal AFC adjustment (R339)

Adjustment preparation

1. (1) Receive the reverse cross-hatch pattern signal. (Cross-hatch lines are black.)
2. (2) Set video conditions to factory reset.
3. (3) Lens focus should be completed.
4. (4) Electrical focus should be coarse adjusted.
5. (5) The digital convergence RAM should be cleared (uncorrected state). With the TV set off, press and hold the service switch located on the front panel (see page 11), and then press the power button. Use a small insulated tool to reach inside the control panel to press the switch.
6. (6) Raster inclination should be completed.

Adjustment procedure

1. (1) Project only green color. Cover R & B lenses or short 2P mini connectors on CPT P.W.B.'s.
2. (2) Adjust H-size to minimum. R649 fully counterclockwise.
3. (3) Adjust green centering magnet (located on DY) to shift picture left to display edge of raster.
4. (4) Adjust AFC (R339) so foldover of front porch occurs. Amount of foldover is 1/2 to 2/3 of front porch (ℓ_1).



Note: (1) Front and back porch of video should be equal.
(2) If adjustment is difficult with test pattern, follow adjustment 1.3.

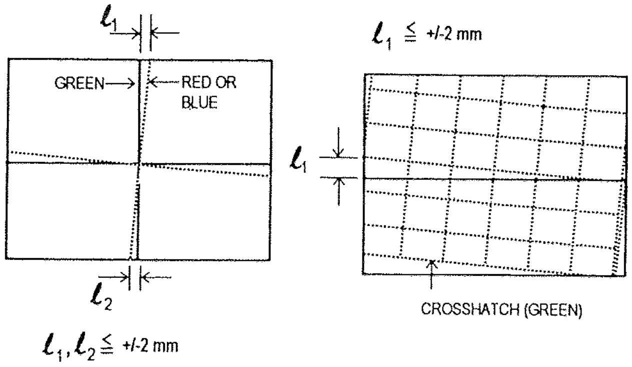
2.8 Raster inclination adjustment (Deflection yoke)

Adjustment preparation

1. (1) The set can face east or west.
2. (2) Input the single cross test signal.
3. (3) Set video conditions to factory reset.
4. (4) The lens focus adjustment should have been completed.
5. (5) The electric focus should have been coarse adjusted.
6. (6) The digital convergence RAM should be cleared (uncorrected state). With the TV set off, press and hold the service switch located on the front panel (see page 11), and then press the power button. Use a small insulated tool to reach inside the control panel to press the switch.
7. (7) Start adjustment 20 minutes or more after TV is turned on.

Adjustment procedure

1. (1) Apply covers to the R and B lenses and project only green light.
2. (2) Turn the G deflection yoke and adjust the vertical raster inclination.
3. (3) Then, remove the cover of R or B lens and project red or blue light and green light together on the screen.
4. (4) Turn the deflection yoke of R or B and set so that the inclination of R or B with respect to the green light is as shown below on the top and bottom sides.
5. (5) After raster inclination adjustment, fixing screw of DY should be screwed with 12±2 kg•cm torque.



Notes: (1) If internal cross-hatch does not appear after clearing RAM data, press front panel service switch (see page 11) again.
(2) To restore old RAM data, turn TV off and on.

2.9 Raster position adjustment

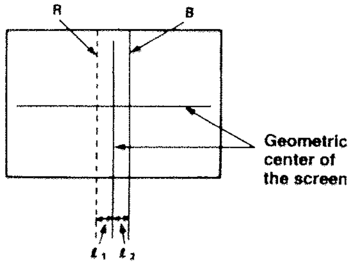
Adjustment preparation

1. (1) The set can face east or west.
2. (2) Input the single cross test signal.
3. (3) Set video conditions to factory reset.
4. (4) The lens focus adjustment should have been completed.
5. (5) The electric focus should have been coarse adjusted.
6. (6) The digital convergence RAM should be cleared (uncorrected state). With the TV set off, press and hold the service switch located on the front panel (see page 11), and then press the power button. Use a small insulated tool to reach inside the control panel to press the switch.
7. (7) Start adjustment 20 minutes or more after TV is turned on.

Adjustment procedure

1. (1) Turn the centering magnets for red, green, and blue to satisfy the condition below. The red and blue horizontal lines should match with green.

Size	Vert. Line	Side of Green
60"	Red l_1	0mm left
60"	Blue l_2	40mm right
50"	Red l_1	7mm left
50"	Blue l_2	42mm right
46"	Red l_1	7mm left
46"	Blue l_2	42mm right



Notes: (1) If internal cross-hatch does not appear after clearing RAM data, press front panel service switch (see page 11) again.
(2) To restore old RAM data, turn TV off and on.

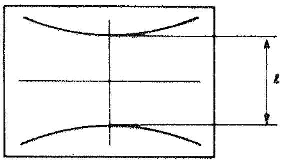
2.10 Vertical size adjustment (R612)

Adjustment preparation
(1) The set can face east or west.
(2) Input the single cross test signal.
(3) Set video conditions to factory reset.
(4) The lens focus adjustment should have been completed.
(5) The electric focus should have been coarse adjusted.
(6) The digital convergence RAM should be cleared (uncorrected state). With the TV set off, press and hold the service switch located on the front panel (see page 11), and then press the power button. Use a small insulated tool to reach inside the control panel to press the switch.
(7) Start adjustment 20 minutes or more after TV is turned on.

Adjustment procedure
(1) Turn only the green by applying covers to the red and blue lens or shorting the 2 pin TS connectors on the red and blue CPT P.W.B.
(2) Count the vertical lines of the DCU cross hatch. If the number of vertical lines is 9, go to step (3). If the number of vertical lines is 8, push "SRD" key and then push "5" key on the R/C so the number of vertical lines becomes "9".
(3) Turn vertical amplitude adjustment VR (R612) so that the distance between the top and bottom horizontal lines is equal to the size shown in the table.

Size	l
60"	770 ± 5mm
50"	650 ± 5mm
46"	580 ± 5mm

Note: (1) If internal cross-hatch does not appear after clearing RAM data, press front panel service switch (see page 11) again.
(2) To restore old RAM data, turn TV off and on.
(3) 'SRD' key is not on R/C CLU-952MP. If 'SRD' is needed, please use R/C CLU-951MP.

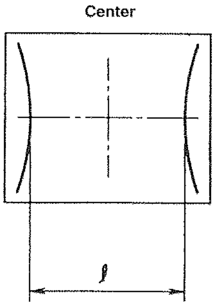


2.11 Horizontal size adjustment (R649)

Adjustment preparation
(1) The set can face east or west.
(2) Input the single cross test signal.
(3) Set video conditions to factory reset.
(4) The lens focus adjustment should have been completed.
(5) The electric focus should have been coarse adjusted.
(6) The digital convergence RAM should be cleared (uncorrected state). With the TV set off, press and hold the service switch located on the front panel (see page 11), and then press the power button. Use a small insulated tool to reach inside the control panel to press the switch.
(7) Start adjustment 20 minutes or more after TV is turned on.

Adjustment procedure
(1) Project only green, the same as 2.10.
(2) Turn horizontal amplitude adjustment VR (R649) so distance between the left and right vertical lines is equal to the size shown in the table.

Size	l
60"	1140 ± 5mm
50"	950 ± 5mm
46"	875 ± 5mm

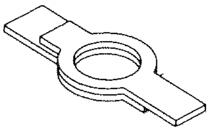


Note: (1) If internal cross-hatch does not appear after clearing RAM data, press front panel service switch (see page 11) again.
(2) To restore old RAM data, turn TV off and on.

2.12 Beam alignment

Adjustment preparation
(1) Adjust at least 30 minutes after turning on power switch.
(2) The static convergence data should be cleared (see section 1.1 Memory initialization).
(3) Raster inclination, centering, horizontal and vertical amplitudes and optical focus adjustment should be completed.
(4) Set video conditions to factory reset.
(5) Receive cross-hatch signals. (Use of internal cross-hatch signals allowed.)
(6) Short-circuit all metal parts (metal fittings, centering magnet) installed on the projection tubes to GNDs of the projection tubes.
Since metal parts are charged with electricity, shocks may be caused if they are not short-circuited.

Adjustment procedure
(1) Green (G) tube beam alignment adjustment. Short-circuit 2P subminiature connector plug pins of Red (R) and Blue (B) on the CPT boards and project only Green (G) tube.
(2) Put Green (G) tube beam alignment magnet to the cancel state as shown below.



(3) Turn the Green (G) static focus (Focus Pack) counterclockwise all the way and make sure of position of cross-hatch center on screen. (Halo state.)
(4) Turn Green (G) static focus (Focus Pack) clockwise all the way. (Blooming state.)
(5) Turn two magnets forming alignment magnet in any desired direction and move cross-hatch center to position found in (3).
(6) If image position does not shift when Green (G) static focus (Focus Pack) is turned, Green (G) beam alignment has been completed.
(7) If image position shifts when Green (G) statis focus (Focus Pack) is turned, repeat (2)-(6).
(8) Conduct beam alignment for Red (R) focus: Focus Pack EFPK
Blue (B) focus: Focus Pack EFPK
(9) Upon completion of adjustment, fix beam alignment magnets with white paint.

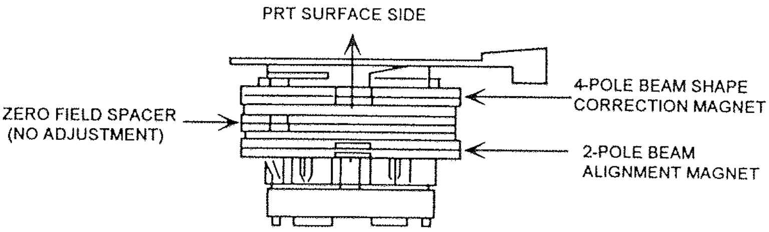
2.13 Beam shape adjustment

Adjustment preparation

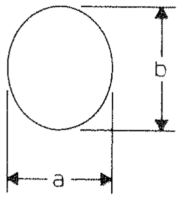
1. The beam alignment should have been completed.
2. The raster inclination, centering, horizontal/vertical amplitude and optical focus adjustments should have been completed.
3. Set video conditions to factory reset.
4. Input the dot signal.

Adjustment procedure

1. Green PRT beam shape adjustment. Short-circuit 2P submini connectors on Red and Blue CPT P.W.B.s to project only the Green beam.
2. Turn the green static focus fully clockwise. (Blooming.)
3. Make the dot at the screen center a true circle using the 4-pole magnet as shown below.
4. Also adjust the Red and Blue PRT beam shapes according to the steps (1) to (3).
5. After the adjustment is completed, return R, G and B static VRs to the Just focus point.


PRT SURFACE SIDE
4-POLE BEAM SHAPE CORRECTION MAGNET
ZERO FIELD SPACER (NO ADJUSTMENT)
2-POLE BEAM ALIGNMENT MAGNET

TRUE CIRCLE SPECIFICATION



TRUE CIRCLE DEGREE: a/b
SPECIFICATION: 0.9-1.1

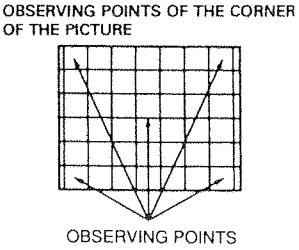
2.14 Static focus adjustment

Adjustment preparation

1. The raster inclination, centering, horizontal/vertical amplitude and optical/electrical focus beam alignment should have been adjusted.
2. The static convergence data should be cleared.
3. Set video conditions to factory reset.
4. Receive the cross-hatch pattern signal.
5. Apply covers to the lenses of colors other than the color to be adjusted and project a single color.

Adjustment procedure

1. Red (R), Green (G) and Blue (B) static focus adjustment. Vary the static focus VR (focus pack EFPK) and make the center of the cross-hatch pattern clearest.
2. Observe the corners of the picture and check that the focus does not get conspicuously worse.



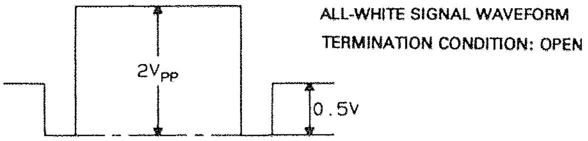
2.15 Blue defocus adjustment

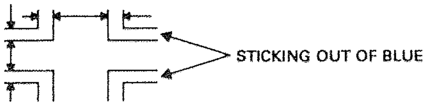
Adjustment preparation

1. Optical and electrical focus adjustment should have been completed.
2. The convergence adjustment should have been completed.
3. Set video conditions to factory reset.

Adjustment procedure

1. Input an all-white signal shown below to VIDEO input.
2. Short-circuit 2P sub-mini connectors on the red and green CPT P.W.B.s to display only the blue beam.
3. Turn the B Focus VR (Focus Pack) fully clockwise.
4. Measure the brightness at the center of the screen and turn the B Focus VR (Focus Pack) counterclockwise to adjust the brightness of blue as shown in Table below.
5. After the adjustment is completed, if blue exceeds the specification, turn and adjust focus so that the sticking out part of blue satisfies the specification.





UNEVENNESS SPECIFICATION: ±1cd/m²

Defocus brightness specification

Screen Size	Brightness of Blue
46"	45 cd/m²
50"	38 cd/m²
60"	--

Defocus sticking out specification

Screen Size	Blue sticking out
46"	2.0 mm
50"	2.0 mm
60"	2.5mm

Condition: User controls are set to the initial set positions (for shipment) Measuring point Screen center.

Cautions: Correct the brightness gauge and amplitude of the all-white signal periodically. The aperture angle of the brightness gauge is 1°.
Use a cross-hatch pattern to check.

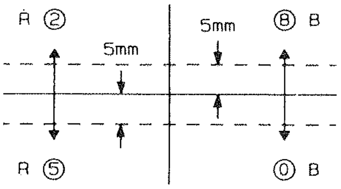
2.16 Static convergence adjustment

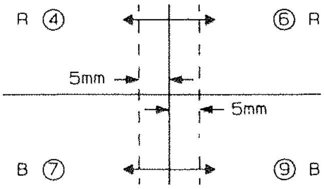
Adjustment preparation

1. The screen can face east or west.
2. Display the cross pattern signal or the cross-hatch pattern signal.
3. R, G and B lens focus adjustment and R, G and B raster inclination adjustment should have been completed.
4. R, G, and B raster position (centering magnet) adjustment should have been completed.
5. Vertical and horizontal size adjustments should have been completed.

Adjustment procedure

(1) Press front panel MAGIC FOCUS button until "STATIC MODE" appears.
(2) Check that the variable range of the static convergence adjustment is obtained as shown below using the cursor buttons of the remote control transmitter.
(3) RV, BV RH, BH





If the adjustment cannot be done, turn the centering magnets for R and B and re-adjust the R and B raster position.

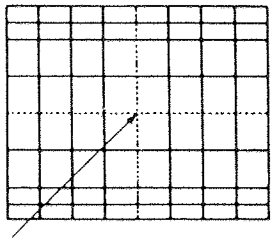
Note: (1) Static convergence is set to standard mode during memory initialization.

2.17 Digital convergence adjustment

Note: If replacing a PRT, DY, etc. perform auto-digital convergence first. (Press front panel MAGIC FOCUS switch when in normal customer mode). This can eliminate the need for a complete digital convergence alignment.

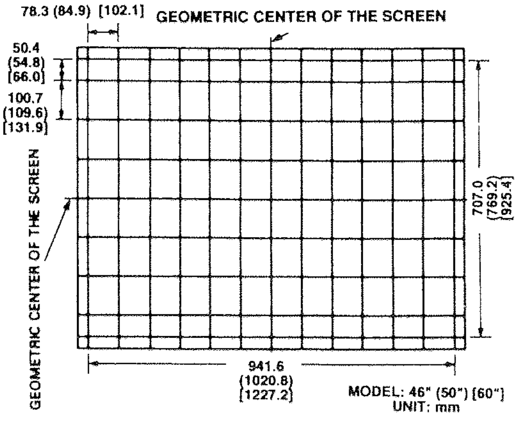
Adjustment preparation

(1) Receive an RF or video signal.
(2) Set controls to factory preset.
(3) Install jig screen on the set.
(4) Note the center of the video pattern displayed. This is necessary to match dotted lines (adjustment point viewed) and actual point that is adjusted and displayed by the video signal.
(5) Press the front panel service only switch. (See page 11). The pattern displayed is now the digital convergence mode.
(6) When performing a complete digital convergence adjustment CLEAR DATA in RAM. See 2.8. (1)-(7).



Adjustment point

JIG SCREEN SPECIFICATION



Notes: (1) Jig screen part number:
46" - H310353
50" - H310354
60" - H310355

(2) If only minor adjustments to convergence are needed, the jig screen is not necessary. Use digital data stored in memory and one color as a reference (red, green, or blue). DO NOT CLEAR DATA and WRITE to ROM memory.

2.17.1. Phase adjustment (service mode)

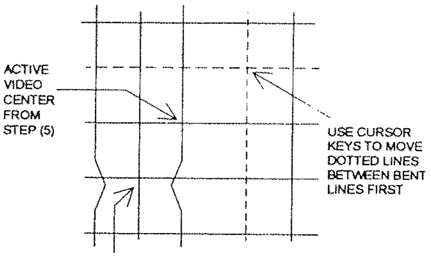
Adjustment preparation

(1) PHASE adjustment — This is to match the digital convergence cursor position to the video image displayed, and to match the digital convergence cursor position (dotted lines) to digital convergence data position (bent lines).

Adjustment procedure

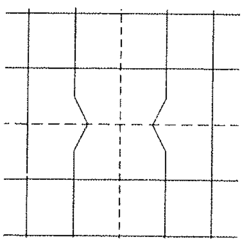
(1) Press the SRD button on the remote to select phase adjustment. (Only Green displayed)
(2) Identify the bent lines and use the cursor buttons to move the dotted lines in between as shown.
(3) Press SRD to exit PHASE mode.
(4) Press ENTER 5 times to display external signal.
(5) Identify center of active video, then press ENTER 5 times to return to internal cross-hatch.
(6) Press SRD (phase adj.), and use 2, 4, 5 and 6 to position internal cross-hatch center on active video center identified in step (5).
(7) Press SRD to exit PHASE mode.

BEFORE


ACTIVE VIDEO CENTER FROM STEP (5)
USE CURSOR KEYS TO MOVE DOTTED LINES BETWEEN BENT LINES FIRST

THEN USE NUMBER KEYS TO MATCH INTERNAL CROSSHATCH CENTER TO ACTIVE VIDEO CENTER

AFTER



2.17.2. Raster position adjustment

Adjustment preparation

(1) Position adjustment — This will move an entire color. Use this adjustment to match colors at the center of the screen. (Active video center from external signal and physical screen center should now match from phase adj. 2.17.1.).
(2) Use the buttons below to switch color to adjust.
"RECALL" - Green
"O" - Red
"AVX" - Blue

Adjustment procedure
(1) Press the FREEZE button. Extra horizontal lines appear to confirm raster position mode.
(2) Use the cursor buttons to adjust position.
(3) Press FREEZE again to exit raster position mode.

Notes: (1) Other functions cannot be accessed when in raster position adjustment mode. Press FREEZE and confirm extra horizontal lines disappear to exit raster position mode.
(2) Press MENU to switch between all colors displayed or adjustment color and Green only.

2.17.3. Convergence point adjustment

Adjustment preparation
(1) Select color to adjust.
"RECALL" - Green
"O" - Red
"AVX" - Blue
(2) Use 4, 6, 2, and 5 to move the cursor position (dotted lines).
(3) Use cursor buttons to move the convergence point.
(4) Three adjustment modes are available:
1. (3x3) Press "RECALL" 5 times
2. (7x5) Press "O" 5 times
3. (13x9) Press "AVX" 5 times

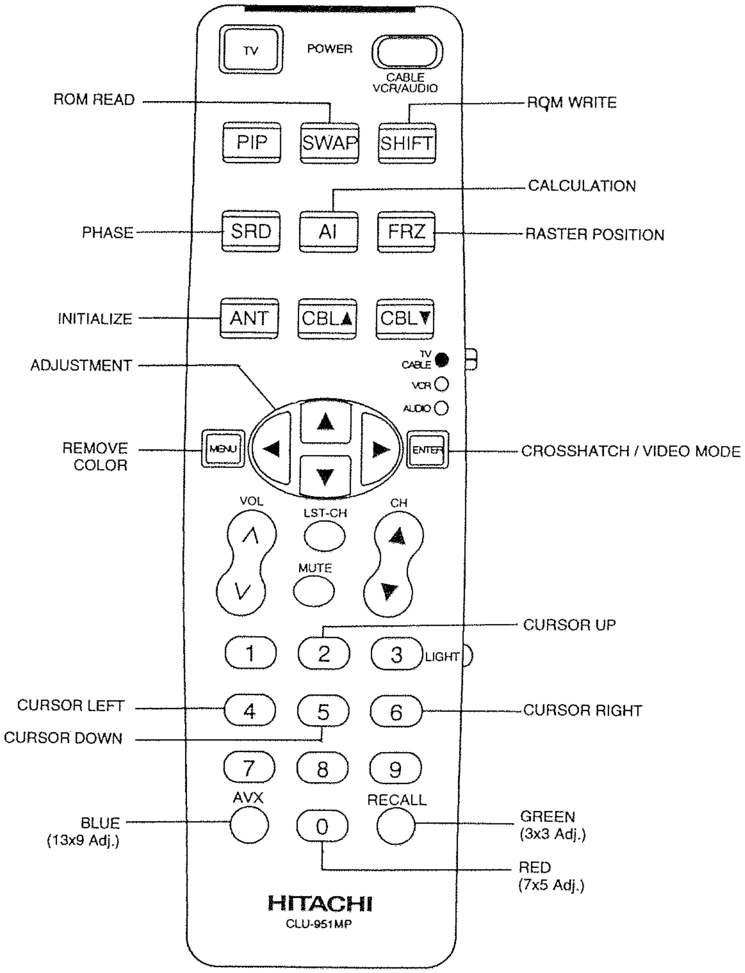
For touch-up, only the (13x9) mode is necessary. This will adjust every cross-hatch intersection point on the screen.
For complete adjustment, start with (3x3) mode. This will adjust center point and eight edge points only, but will greatly reduce adjustment time. Then use (7x5) mode, and finally (13x9) mode to finish convergence.
If "S" distortion appears between cross-hatch lines repeat (7x5) mode to change calculation process while adjusting to remove distortion, then return to (13x9) mode to finish touch-up convergence.

Adjustment procedure
(1) Start adjustment at the center of the screen.
(2) Continue adjustment at next closest position.
(3) Adjust center area first, and ending with edge sections.
(4) Press the AI button to perform interpolation operation. This process will take about 15 seconds and no picture will be seen at this time.
(5) After interpolation, check convergence again and repeat (1)-(5) if necessary.
(6) When convergence is acceptable, press SHIFT to write data to ROM memory. ROM WRITE? is displayed to alarm system that ROM will be overwritten with new data. Press the SHIFT button again to write displayed data to ROM.
(7) DATA WRITE TO ROM will take approximately 20 seconds and no picture will be displayed.
(8) Green dots will be displayed when operation is complete.
(9) Press MUTE to return to convergence pattern, then confirm again convergence is acceptable.
(10) Press SHIFT (ROM WRITE) mode, then press ANT to initialize sensor data positions.

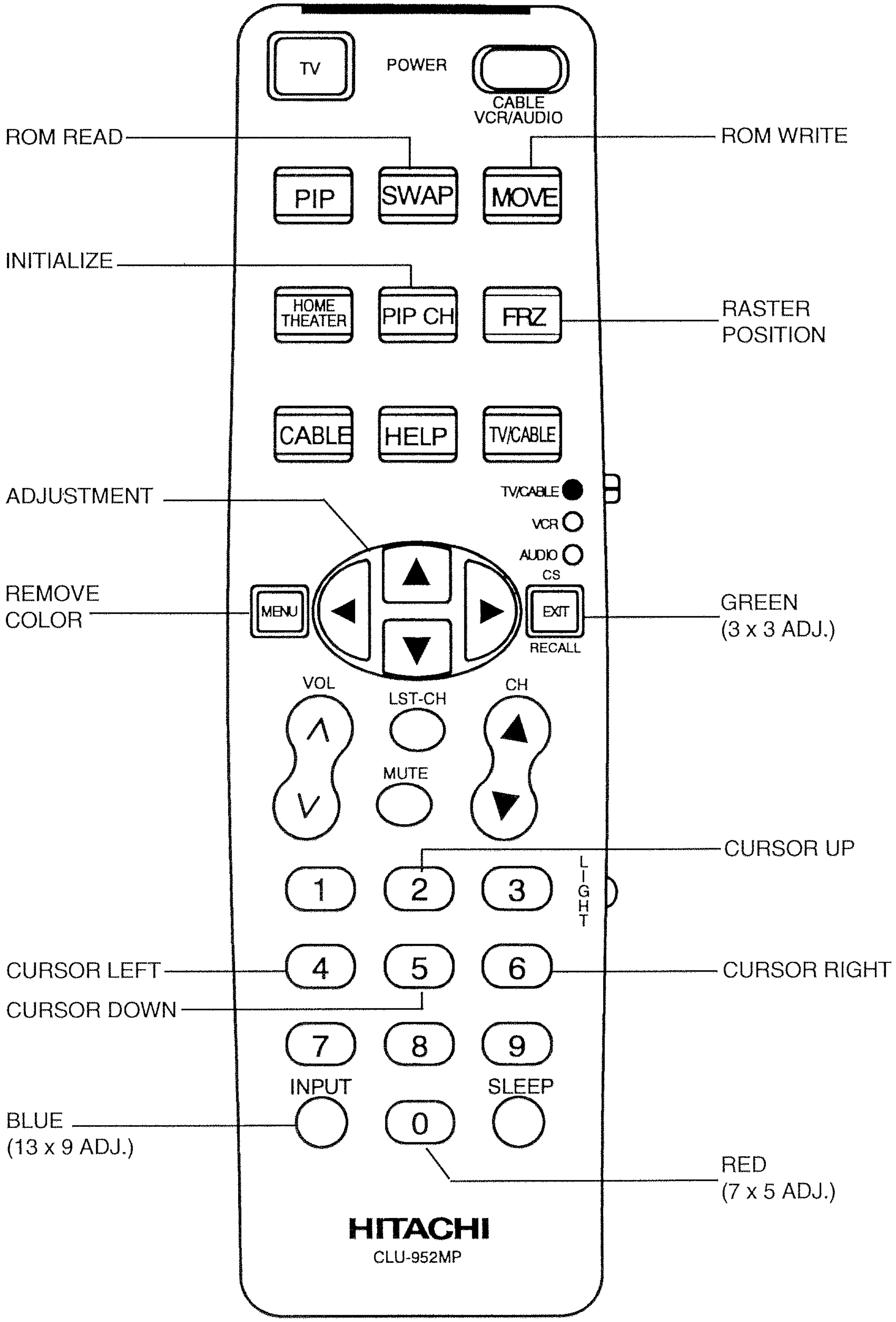
Notes: (1) Display only green for easier adjustment and match to jig screen. Press "MENU", THEN PRESS "RECALL".
(2) Perform interpolation and data write to ROM after green adjustment. Once green has been confirmed to match jig screen, the jig screen can be removed. Do not readjust the green color after jig screen has been removed. This is now your reference color.
(3) Display green and red only and match red to green.
(4) Display all colors and match blue to green and red. Touch-up red color if necessary.

(5) Existing DATA in ROM can be read by pressing the SWAP button 2 times. This data can be used after replacing a component (CRT, DY, etc.) Where complete convergence adjustment is not necessary be careful not to overwrite this data.
DO NOT write cleared RAM data into ROM or a complete convergence adjustment will be necessary. Remember to try MAGIC FOCUS before starting convergence adjustment to minimize adjustment time.

2.17.4. Digital Convergence Remote Control



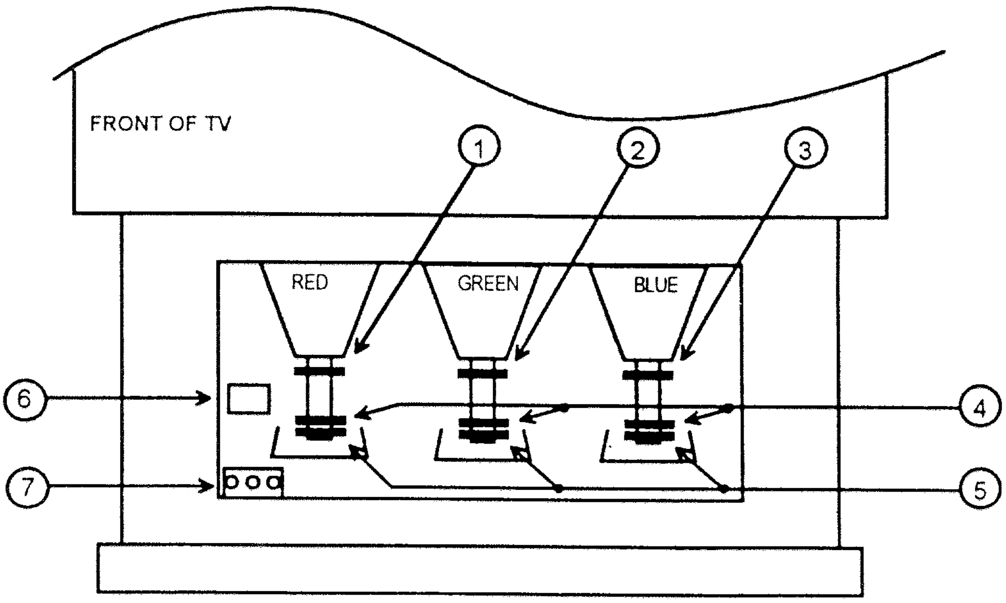
2.17.4. Digital convergence remote control


TV
POWER
CABLE
VCR/AUDIO
ROM READ
ROM WRITE
PIP
SWAP
MOVE
INITIALIZE
HOME THEATER
PIP CH
FRZ
RASTER POSITION
CABLE
HELP
TV/CABLE
TV/CABLE
VCR
AUDIO
CS
ADJUSTMENT
REMOVE COLOR
MENU
EXIT
RECALL
GREEN (3 x 3 ADJ.)
VOL
LST-CH
CH
MUTE
CURSOR UP
LIGHT
1
2
3
CURSOR LEFT
4
5
6
CURSOR RIGHT
CURSOR DOWN
7
8
9
INPUT
SLEEP
BLUE (13 x 9 ADJ.)
0
RED (7 x 5 ADJ.)
HITACHI
CLU-952MP

Note: Digital Convergence Adjustment procedures (2.17) were described for use with a CLU-951MP remote control. It is not possible to make Phase Adjustment (2.17.1) using the CLU-952MP remote control. If phase adjustment is necessary, please use the CLU-951MP remote control.

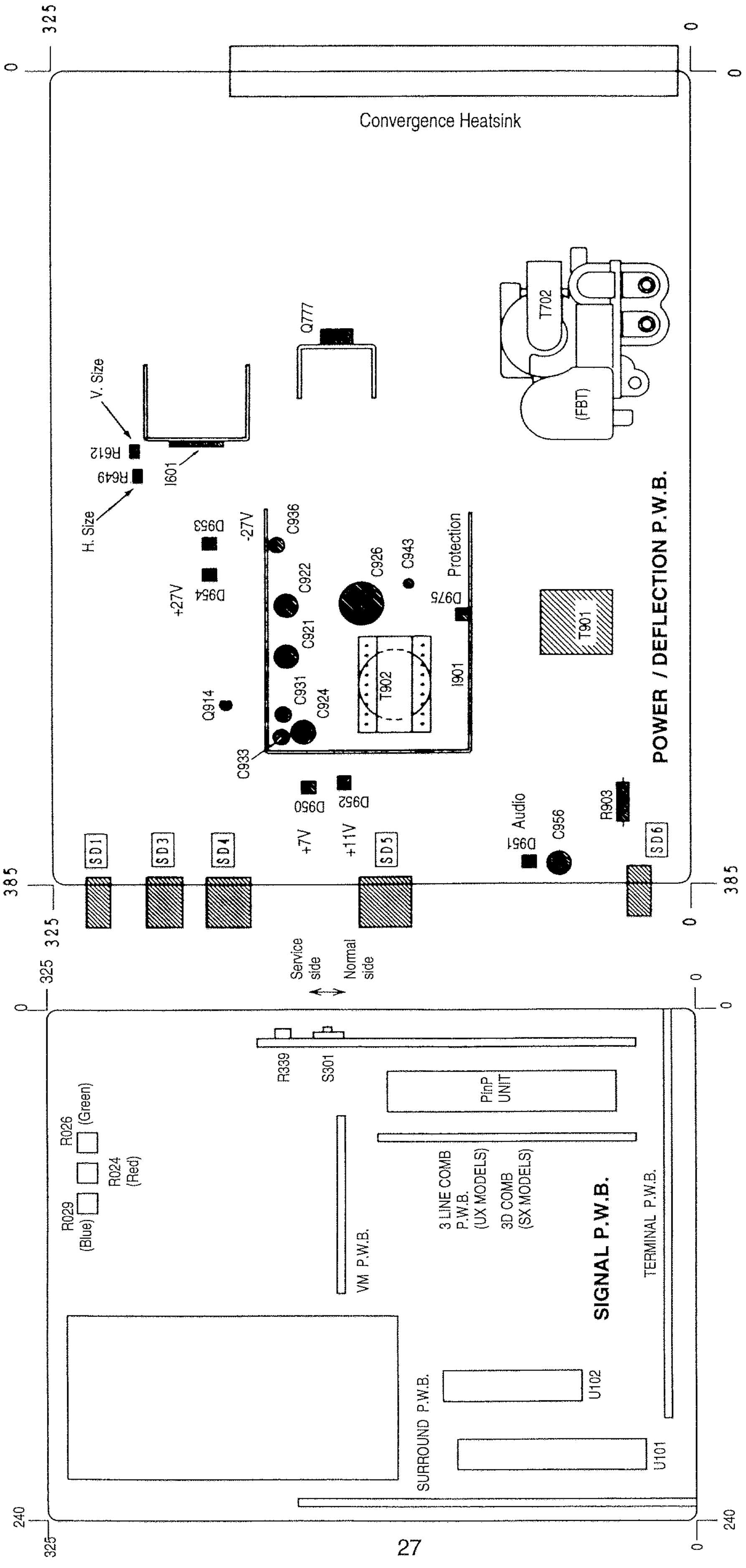
3. ADJUSTMENT POINT

3.1 CRT, cabinet locations

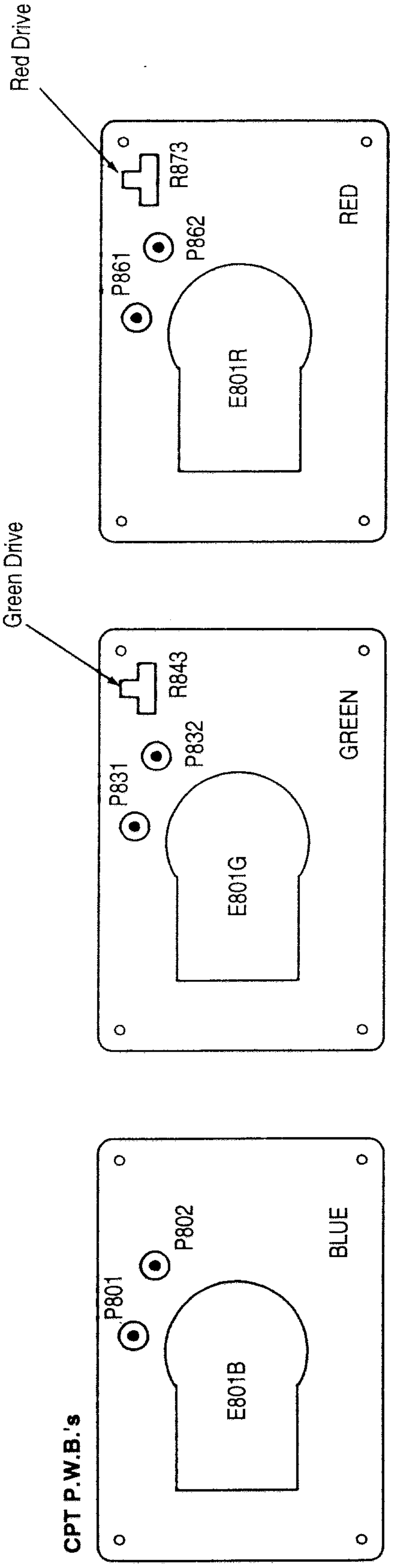


1. CENTERING MAGNET FOR RED PRT
2. CENTERING MAGNET FOR GREEN PRT
3. CENTERING MAGNET FOR BLUE PRT
4. 4-POLE MAGNET FOR BEAM FORM ADJUSTMENT
5. BEAM ALIGNMENT MAGNET
6. DIGITAL CONVERGENCE MODULE
7. FOCUS PACK (TOP ADJUSTMENTS FOR FOCUS, BOTTOM FOR SCREEN)

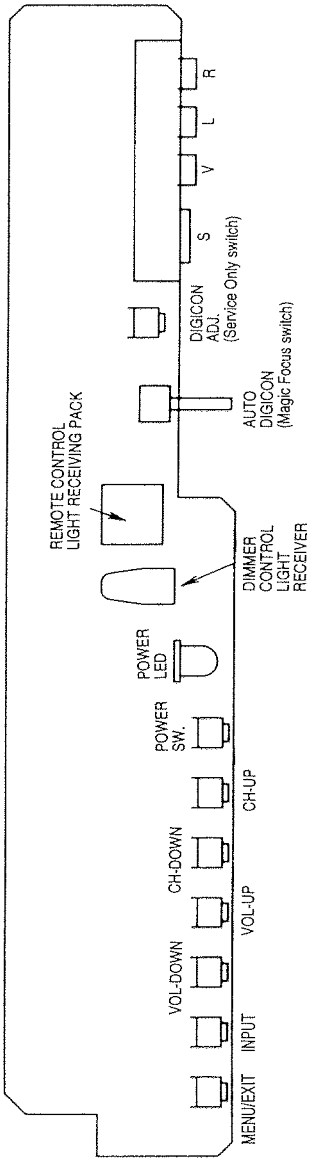
3.2 Signal PWB, Power/Deflection P.W.B. adjustment points


325
0
385
325
240
Convergence Heatsink
POWER / DEFLECTION P.W.B.
T702
(FBT)
Q777
V. Size
H. Size
R612
R649
I601
D953
D954
-27V
+27V
C936
C922
C926
C943
Protection
D975
T901
C921
T902
I901
Q914
C931
C924
C933
D950
D952
+7V
+11V
Audio
D951
C956
R903
SD1
SD3
SD4
SD5
SD6
Service side
Normal side
SIGNAL P.W.B.
R339
S301
PinP UNIT
R026 (Green)
R024 (Red)
R029 (Blue)
VM P.W.B.
3 LINE COMB P.W.B. (UX MODELS)
3D COMB (SX MODELS)
TERMINAL P.W.B.
SURROUND P.W.B.
U102
U101

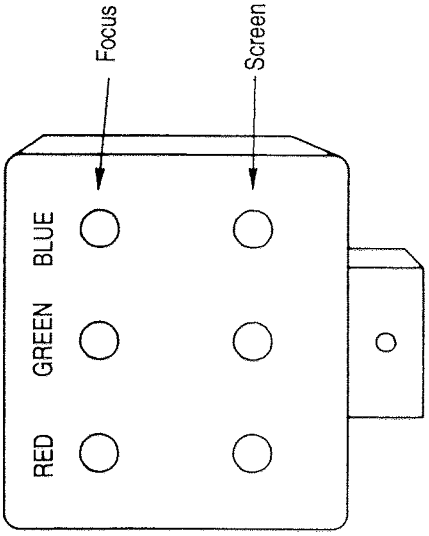
3.3 CPT, Control P.W.B., Focus Pack adjustment points


Red Drive
R873
P862
P861
E801R
RED
Green Drive
R843
P832
P831
E801G
GREEN
P802
P801
E801B
BLUE

CPT P.W.B.'s


R
L
V
S
(Service Only switch)
DIGICON
ADJ.
(Service Only switch)
AUTO
DIGICON
(Magic Focus switch)
REMOTE CONTROL
LIGHT RECEIVING PACK
DIMMER
CONTROL
LIGHT
RECEIVER
POWER
LED
POWER
SW.
CH-UP
CH-DOWN
VOL-UP
VOL-DOWN
INPUT
MENU/EXIT

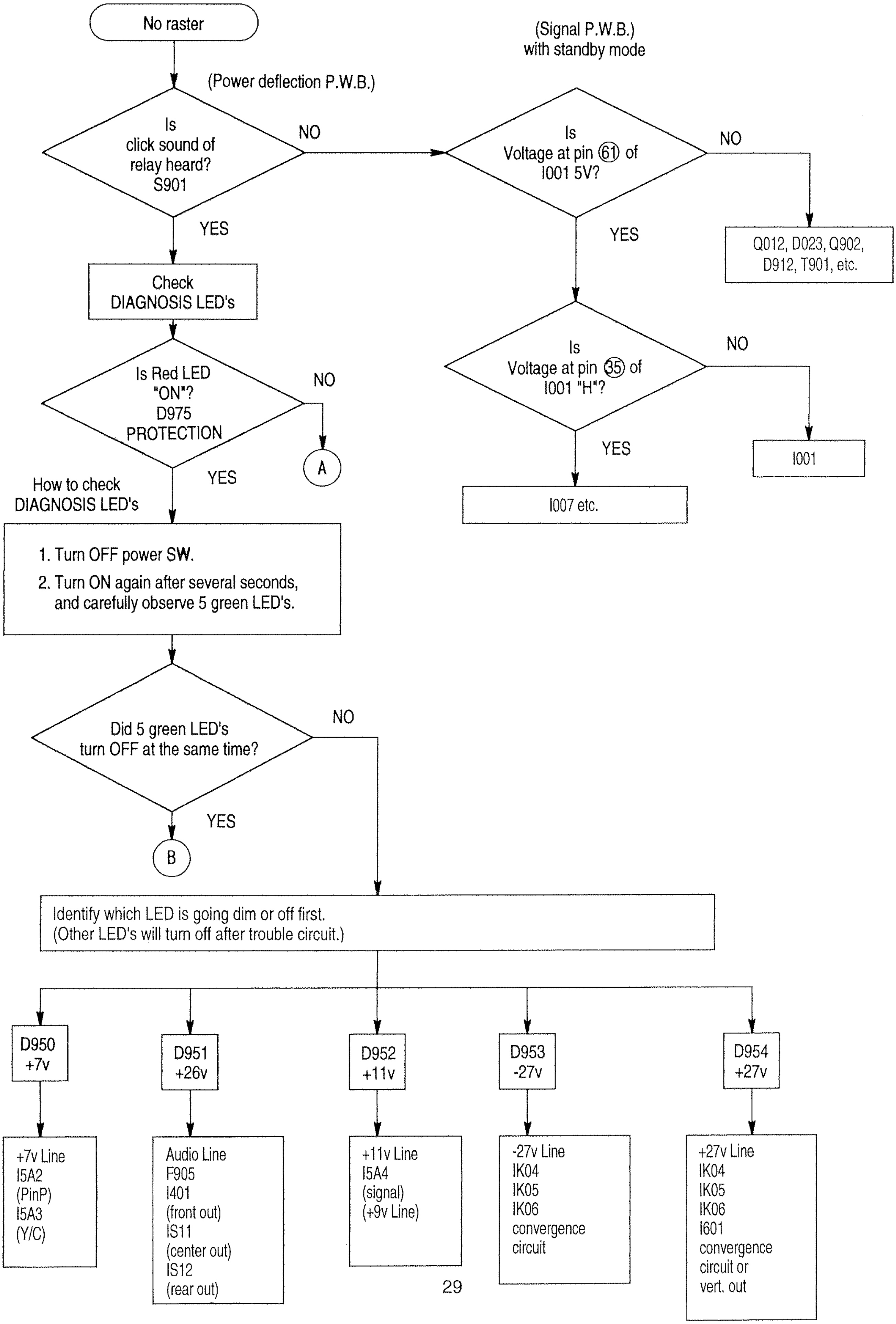
CONTROL P.W.B.

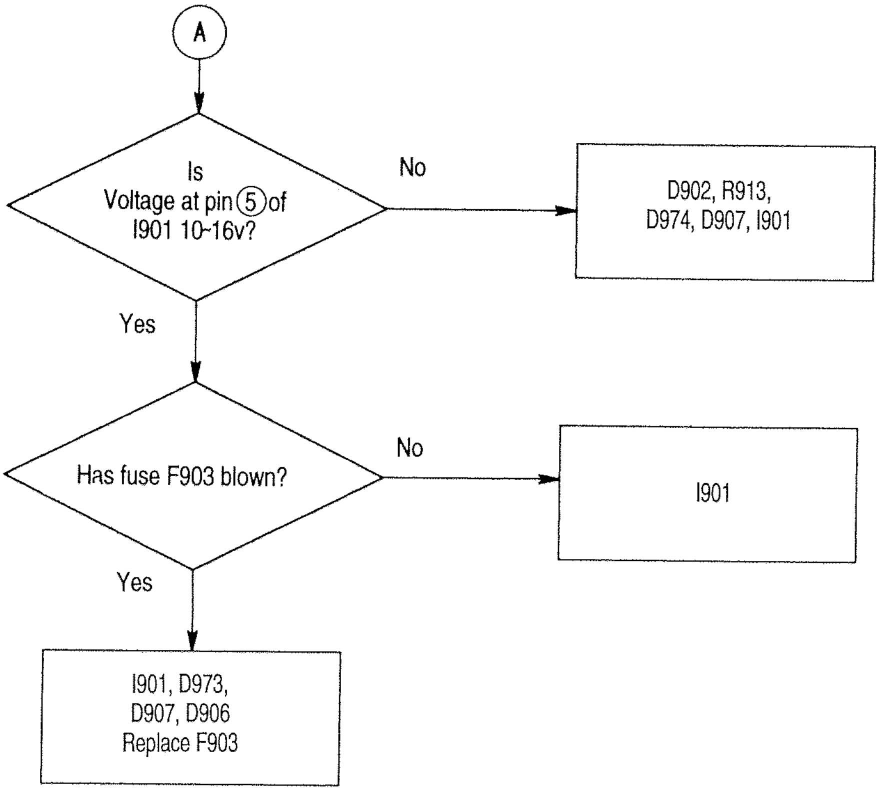

Focus
Screen
BLUE
GREEN
RED

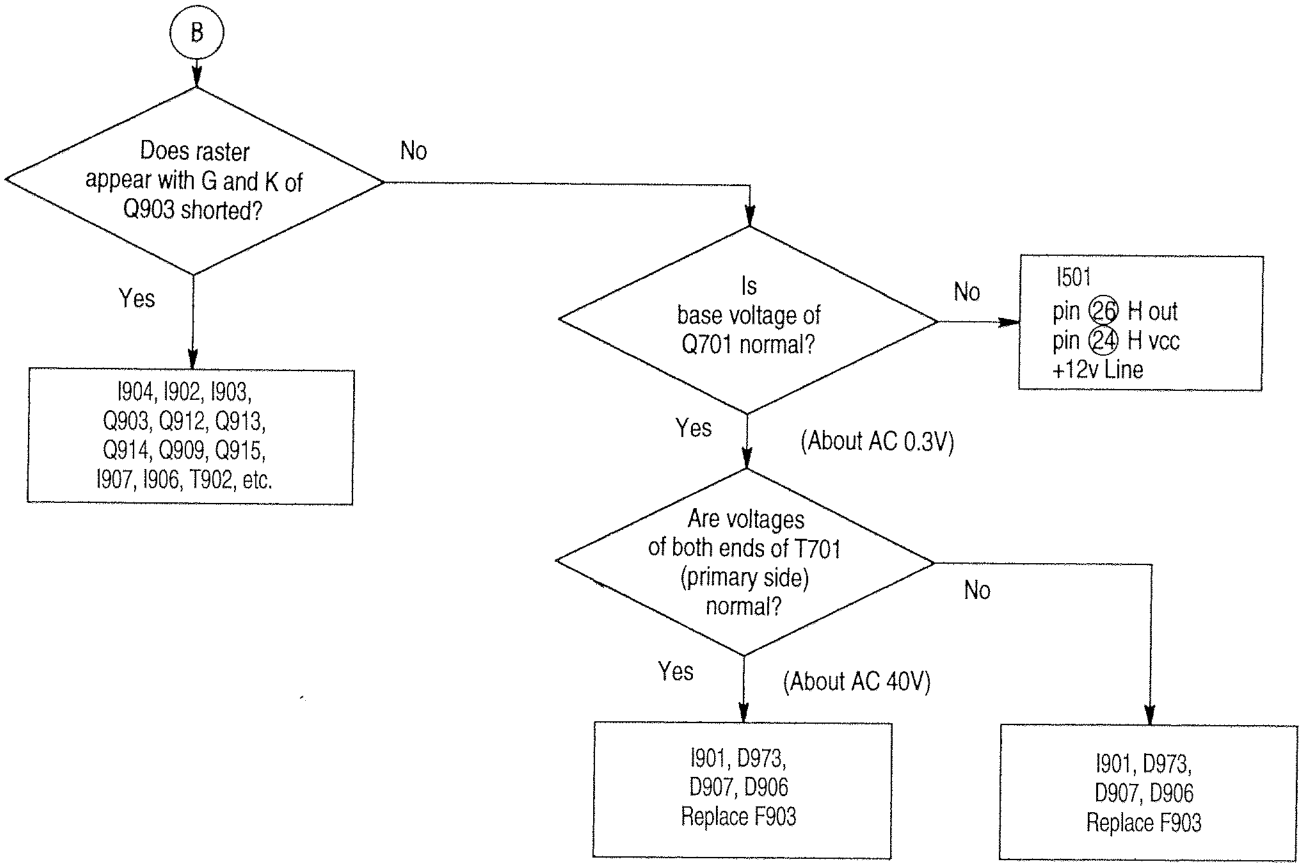
FOCUS PACK

TROUBLESHOOTING

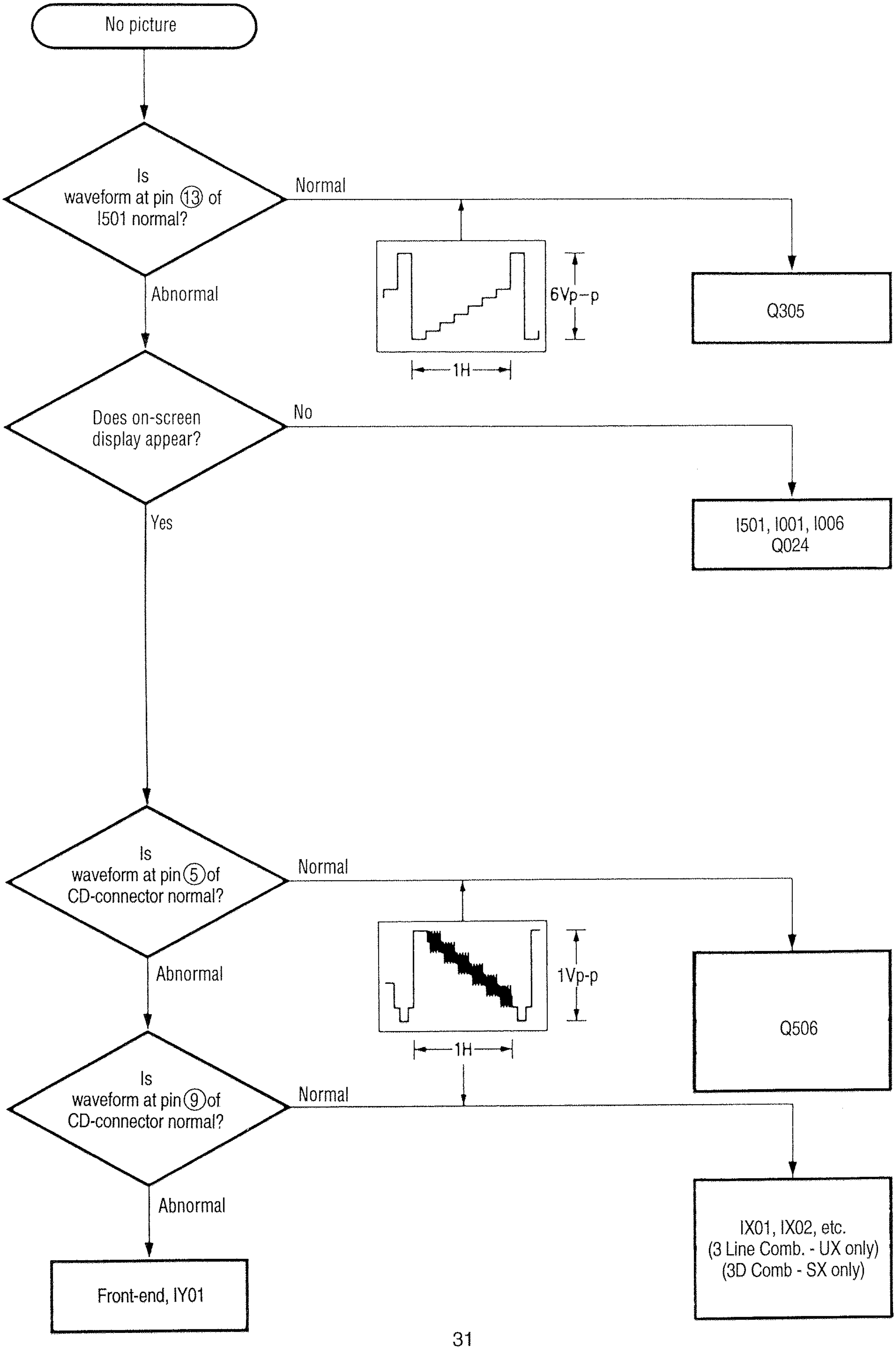
1. No raster


No raster
(Power deflection P.W.B.)
Is click sound of relay heard? S901
NO
YES
Check DIAGNOSIS LED's
Is Red LED "ON"? D975 PROTECTION
NO
A
YES
How to check DIAGNOSIS LED's
1. Turn OFF power SW.
2. Turn ON again after several seconds, and carefully observe 5 green LED's.
Did 5 green LED's turn OFF at the same time?
NO
YES
B
Identify which LED is going dim or off first.
(Other LED's will turn off after trouble circuit.)
D950 +7v
D951 +26v
D952 +11v
D953 -27v
D954 +27v
+7v Line I5A2 (PinP) I5A3 (Y/C)
Audio Line F905 I401 (front out) IS11 (center out) IS12 (rear out)
+11v Line I5A4 (signal) (+9v Line)
-27v Line IK04 IK05 IK06 convergence circuit
+27v Line IK04 IK05 IK06 I601 convergence circuit or vert. out
(Signal P.W.B.) with standby mode
Is Voltage at pin ㊶ of I001 5V?
NO
Q012, D023, Q902, D912, T901, etc.
YES
Is Voltage at pin ㉟ of I001 "H"?
NO
I001
YES
I007 etc.

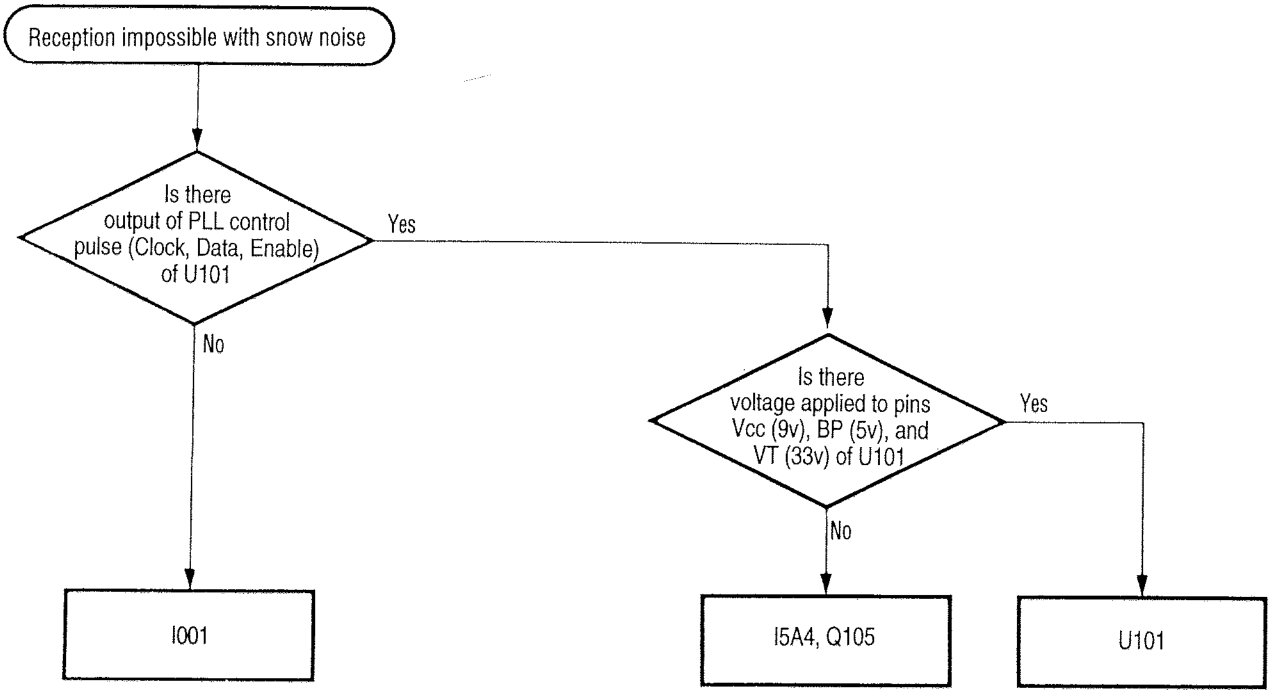

A
Is Voltage at pin ⑤ of I901 10-16v?
No
D902, R913, D974, D907, I901
Yes
Has fuse F903 blown?
No
I901
Yes
I901, D973, D907, D906 Replace F903


B
Does raster appear with G and K of Q903 shorted?
No
Yes
I904, I902, I903, Q903, Q912, Q913, Q914, Q909, Q915, I907, I906, T902, etc.
Is base voltage of Q701 normal?
No
I501 pin ㉖ H out pin ㉔ H vcc +12v Line
Yes
(About AC 0.3V)
Are voltages of both ends of T701 (primary side) normal?
No
Yes
(About AC 40V)
I901, D973, D907, D906 Replace F903
I901, D973, D907, D906 Replace F903

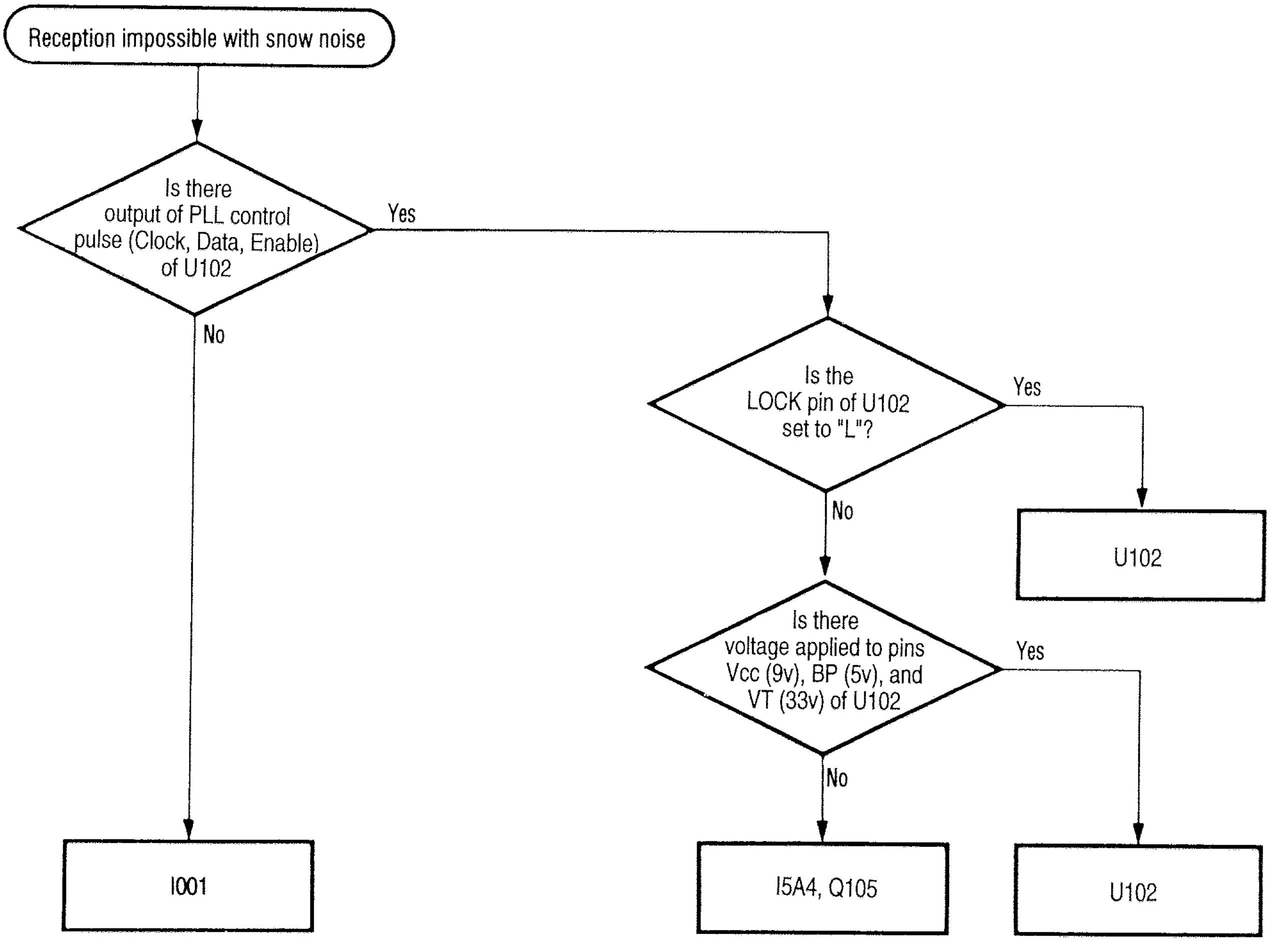
2. No picture


No picture
Is waveform at pin ⑬ of I501 normal?
Normal
Abnormal
6Vp−p
1H
Q305
Does on-screen display appear?
No
Yes
I501, I001, I006
Q024
Is waveform at pin ⑤ of CD-connector normal?
Normal
Abnormal
1Vp-p
1H
Q506
Is waveform at pin ⑨ of CD-connector normal?
Normal
Abnormal
Front-end, IY01
IX01, IX02, etc.
(3 Line Comb. - UX only)
(3D Comb - SX only)

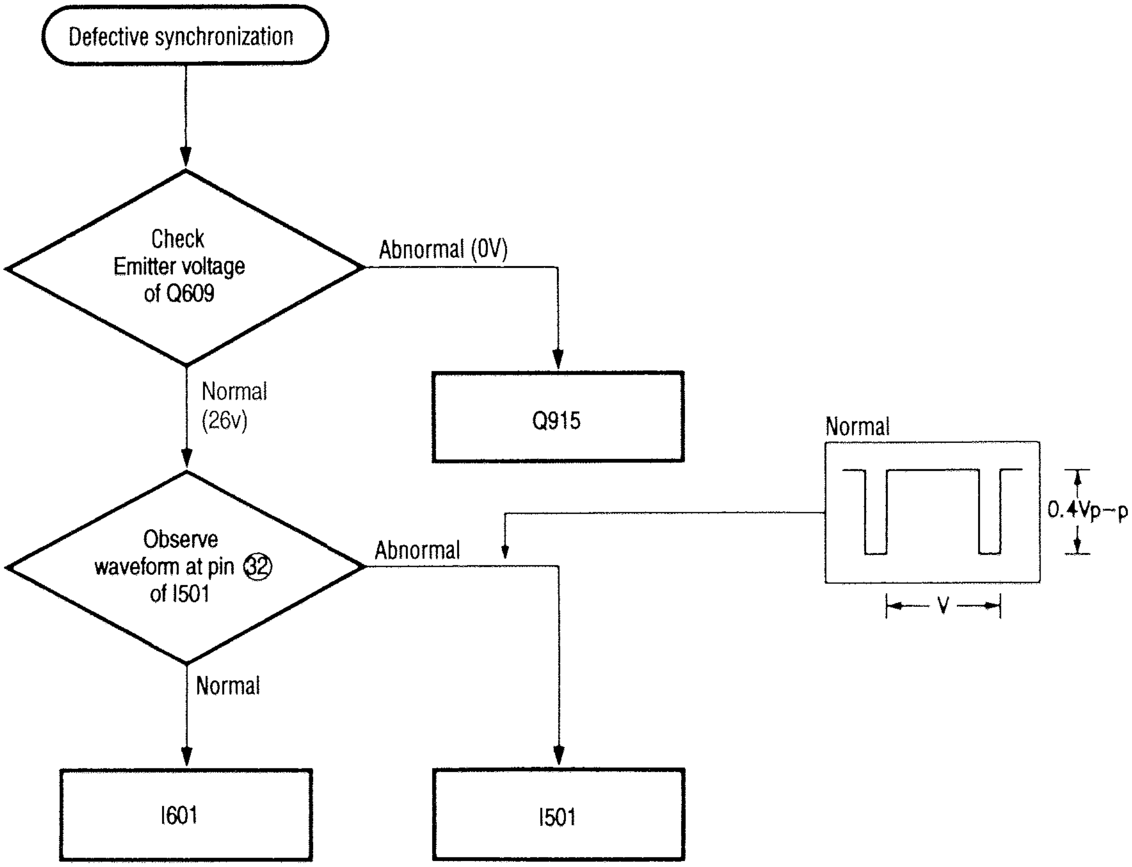
3. Reception impossible with snow noise
ANT A - Green Channel OSD


Reception impossible with snow noise
Is there output of PLL control pulse (Clock, Data, Enable) of U101
Yes
No
Is there voltage applied to pins Vcc (9v), BP (5v), and VT (33v) of U101
Yes
No
I001
I5A4, Q105
U101

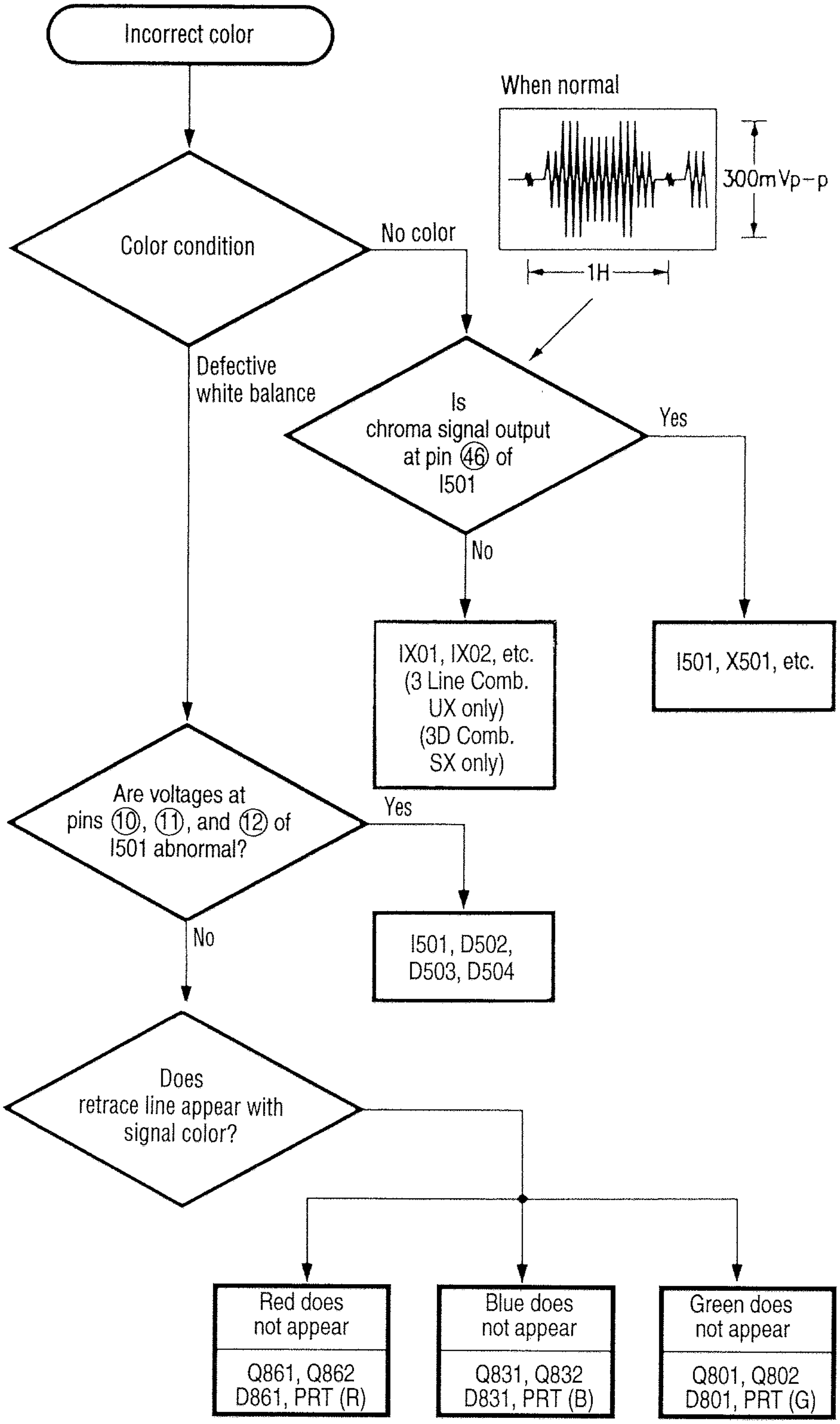
ANT B - Yellow Channel OSD


Reception impossible with snow noise
Is there output of PLL control pulse (Clock, Data, Enable) of U102
Yes
No
Is the LOCK pin of U102 set to "L"?
Yes
No
U102
Is there voltage applied to pins Vcc (9v), BP (5v), and VT (33v) of U102
Yes
No
I001
I5A4, Q105
U102

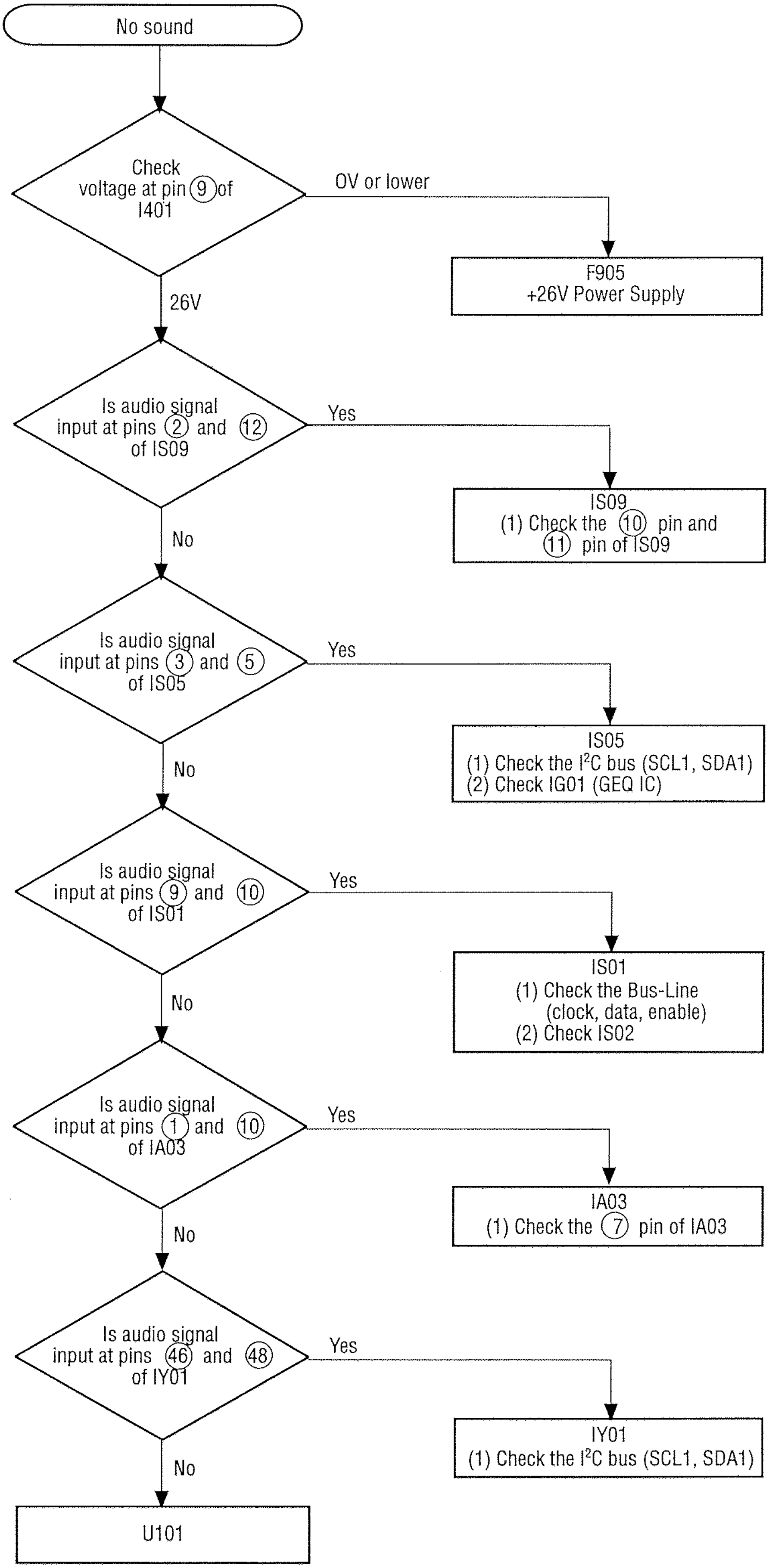
4. Defective synchronization


Defective synchronization
Check Emitter voltage of Q609
Abnormal (0V)
Q915
Normal (26v)
Observe waveform at pin ㉜ of I501
Abnormal
Normal
0.4Vp−p
V
Normal
I601
I501

5. Incorrect color


Incorrect color
Color condition
No color
Defective white balance
When normal
300mVp-p
1H
Is chroma signal output at pin ㊻ of I501
Yes
No
IX01, IX02, etc. (3 Line Comb. UX only) (3D Comb. SX only)
I501, X501, etc.
Are voltages at pins ⑩, ⑪, and ⑫ of I501 abnormal?
Yes
No
I501, D502, D503, D504
Does retrace line appear with signal color?
Red does not appear
Q861, Q862 D861, PRT (R)
Blue does not appear
Q831, Q832 D831, PRT (B)
Green does not appear
Q801, Q802 D801, PRT (G)

6. No sound (when Surround OFF)


No sound
Check voltage at pin ⑨ of I401
0V or lower
F905
+26V Power Supply
26V
Is audio signal input at pins ② and ⑫ of IS09
Yes
IS09
(1) Check the ⑩ pin and ⑪ pin of IS09
No
Is audio signal input at pins ③ and ⑤ of IS05
Yes
IS05
(1) Check the I²C bus (SCL1, SDA1)
(2) Check IG01 (GEQ IC)
No
Is audio signal input at pins ⑨ and ⑩ of IS01
Yes
IS01
(1) Check the Bus-Line (clock, data, enable)
(2) Check IS02
No
Is audio signal input at pins ① and ⑩ of IA03
Yes
IA03
(1) Check the ⑦ pin of IA03
No
Is audio signal input at pins (46) and (48) of IY01
Yes
IY01
(1) Check the I²C bus (SCL1, SDA1)
No
U101

7. Convergence errors

If an error message or code appears while performing MAGIC FOCUS or Initialize (SHIFT, ANT in service mode) follow this confirmation and repair method.

1. Turn on power and receive any signal.
2. Press front panel service switch.
3. Press "SWAP", "ANT" on remote control.
4. Error code will be displayed in bottom right corner of screen. If there is no error, an 'INITIAL OK' message will appear on screen.
5. Follow repair table for errors.

DCU REPAIR TABLE

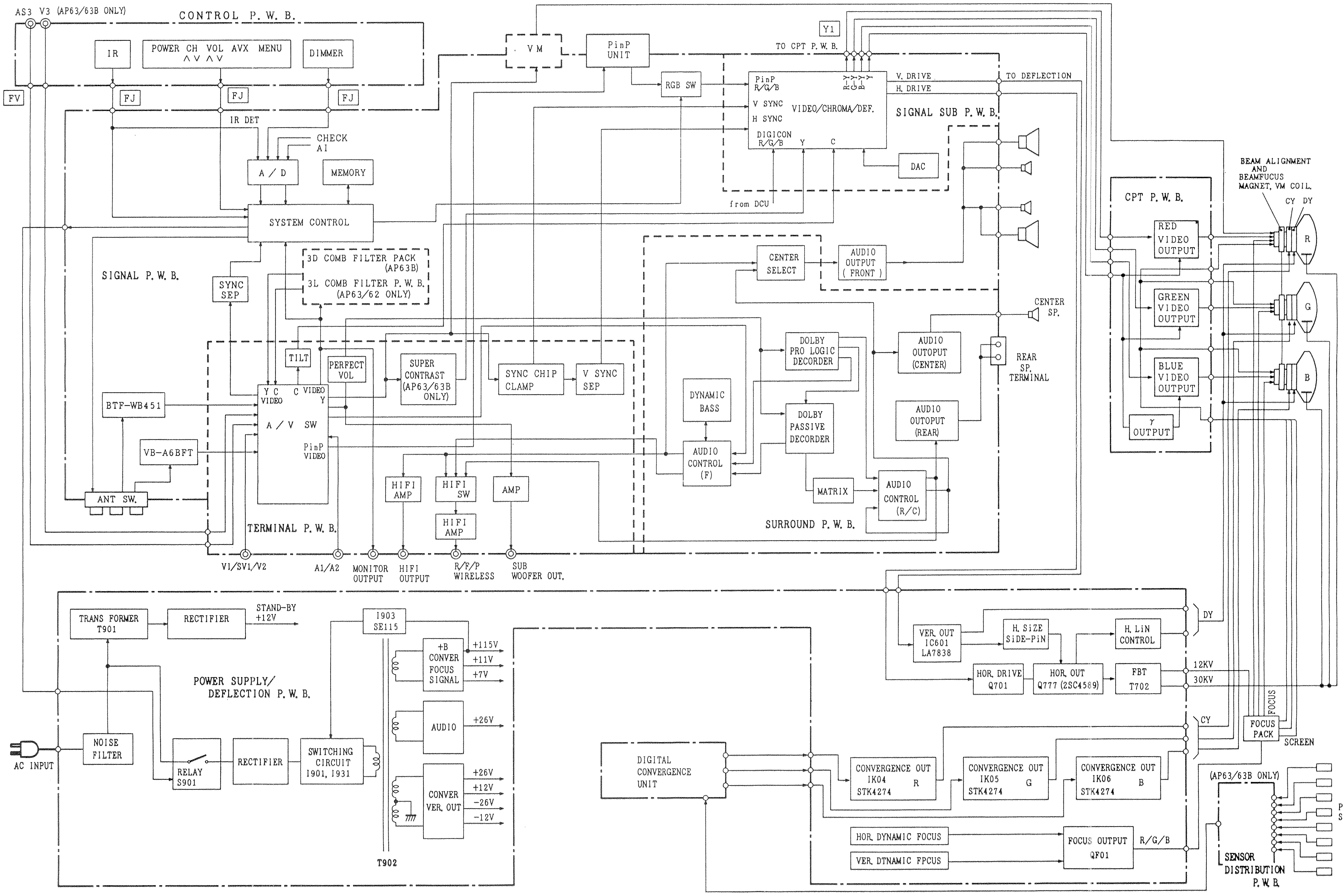
Error Code	Error Display	Countermeasure	Application	
			Initialize	Magic Focus
1	VF Error	Replace DCU	X	X
2 *2	Connect 1	1. Darken outside light 2. Placing of sensor 3. Is pattern hitting sensor 4. Check connection and solder bridge of sensor 5. Replace sensor 6. Replace sensor P.W.B. 7. Sensor Connector check 8. Replace DCU 9. Adjustment check (H/V size, centering)	X	--
3*2	A/D Level	Same as Error Code 2	X	X
4	Over Flow	1. Check the placement of sensor 2. Adjustment check (H/V size, centering) 3. Conv. amp gain check *1 (check resistor values only)	X	X
5	Convergence	Same as Error Code 4	X	X
7	Operation	Same as Error Code 4	--	X
9	Connect 2	Same as Error Code 2	X	X
10	Noise	Input strong field strong signal. Check the wiring of connector between sensor and DCU.	X	X
11	SYNC	Input strong field strength signal. Input standard signal NTSC	X	X

*1 --RK 15, 16, 20, 21, 25, 26, 30, 31, 35, 36, 41, 42 check these resistors.

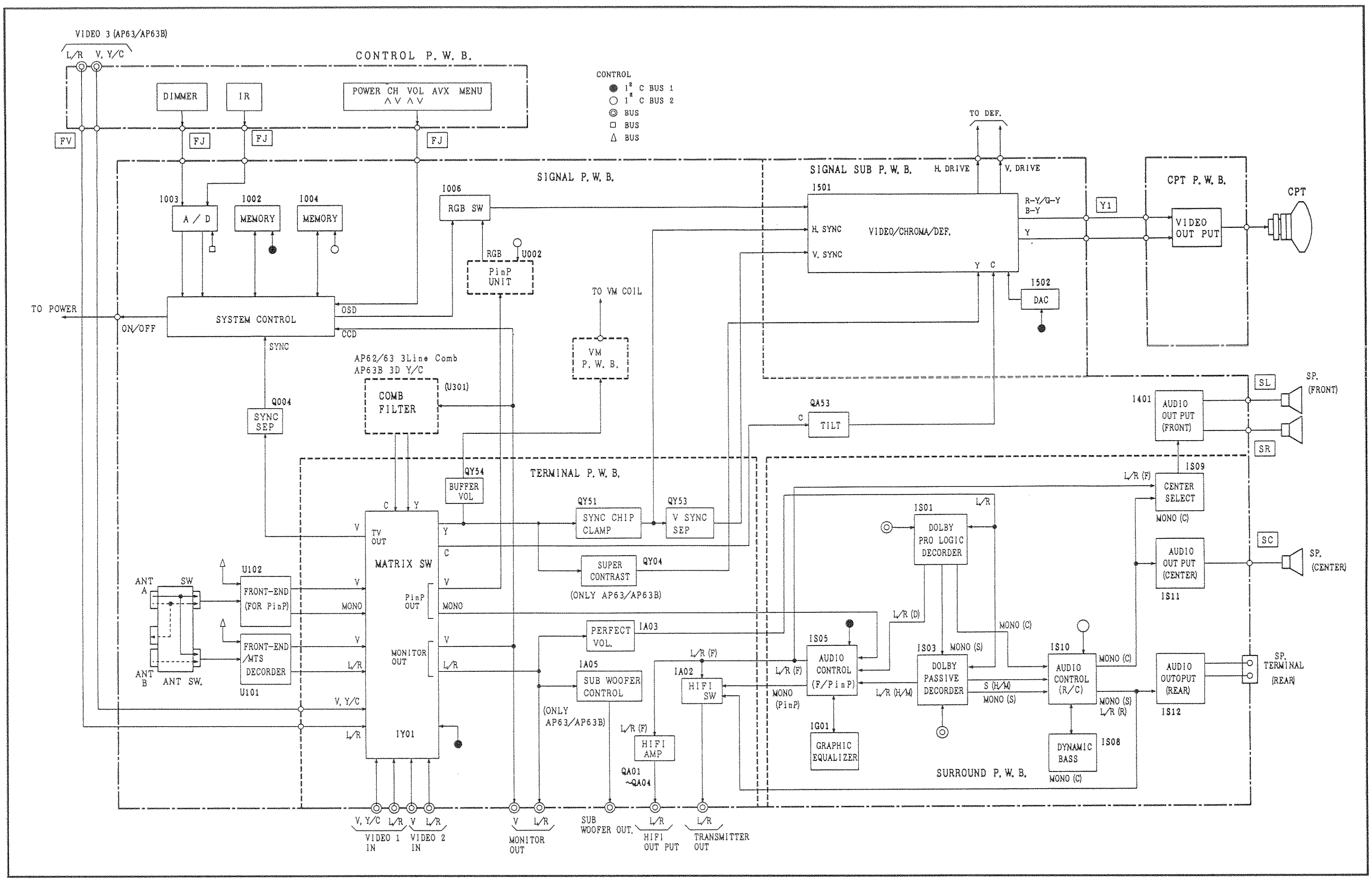
*2 Sensor Position (View from front side)

0	1	2
7		3
6	5	4

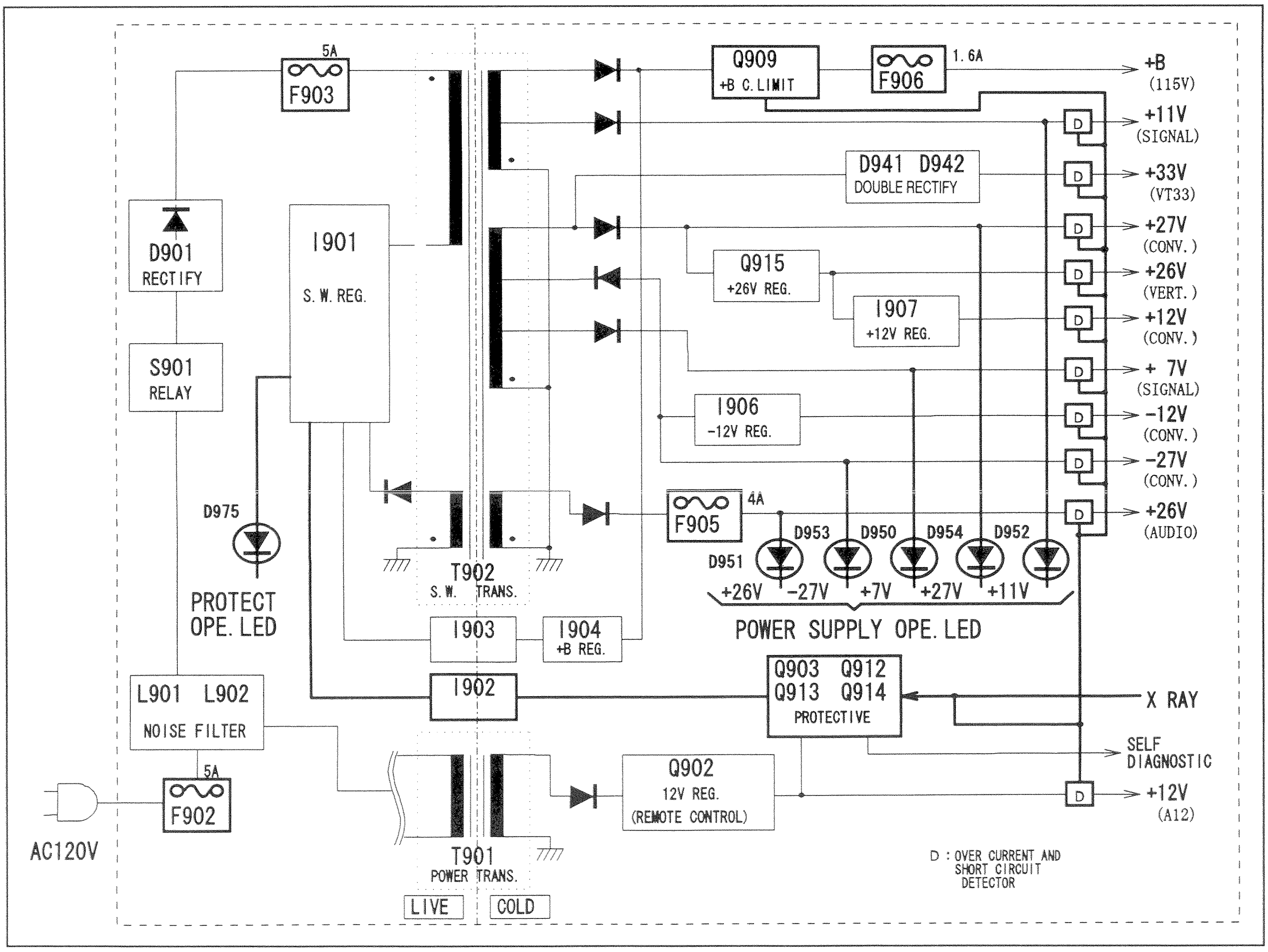
BLOCK DIAGRAM (1/2)


AS3 V3 (AP63/63B ONLY)
CONTROL P. W. B.
IR
POWER CH VOL AVX MENU
∧∨ ∧∨
DIMMER
FV
FJ
FJ
FJ
IR DET
CHECK
AI
A / D
MEMORY
SYSTEM CONTROL
SIGNAL P. W. B.
SYNC SEP
3D COMB FILTER PACK (AP63B)
3L COMB FILTER P. W. B. (AP63/62 ONLY)
TILT
PERFECT VOL
SUPER CONTRAST (AP63/63B ONLY)
SYNC CHIP CLAMP
V SYNC SEP
Y C VIDEO
C VIDEO Y
A / V SW
PinP VIDEO
BTF-WB451
VB-A6BFT
ANT SW.
HIFI AMP
HIFI SW
AMP
HIFI AMP
TERMINAL P. W. B.
V1/SV1/V2
A1/A2
MONITOR OUTPUT
HIFI OUTPUT
R/F/P WIRELESS
SUB WOOFER OUT.
V M
PinP UNIT
RGB SW
Y1
TO CPT P. W. B.
PinP R/G/B
V SYNC
H SYNC
VIDEO/CHROMA/DEF.
DIGICON R/G/B
Y
C
V. DRIVE
H. DRIVE
TO DEFLECTION
SIGNAL SUB P. W. B.
DAC
from DCU
CENTER SELECT
AUDIO OUTPUT (FRONT)
DOLBY PRO LOGIC DECORDER
DYNAMIC BASS
AUDIO CONTROL (F)
DOLBY PASSIVE DECORDER
MATRIX
AUDIO OUTOPUT (CENTER)
AUDIO OUTOPUT (REAR)
AUDIO CONTROL (R/C)
SURROUND P. W. B.
CENTER SP.
REAR SP. TERMINAL
CPT P. W. B.
BEAM ALIGNMENT AND BEAMFUCUS MAGNET, VM COIL.
CY
DY
RED VIDEO OUTPUT
GREEN VIDEO OUTPUT
BLUE VIDEO OUTPUT
γ OUTPUT
R
G
B
TRANS FORMER T901
RECTIFIER
STAND-BY +12V
I903 SE115
+B CONVER FOCUS SIGNAL
+115V
+11V
+7V
AUDIO
+26V
CONVER VER. OUT
+26V
+12V
-26V
-12V
T902
POWER SUPPLY/ DEFLECTION P. W. B.
AC INPUT
NOISE FILTER
RELAY S901
RECTIFIER
SWITCHING CIRCUIT I901, I931
VER. OUT IC601 LA7838
H. SiZE SiDE-PiN
H. LiN CONTROL
HOR. DRIVE Q701
HOR. OUT Q777 (2SC4589)
FBT T702
DY
12KV
30KV
FOCUS
FOCUS PACK
SCREEN
CY
DIGITAL CONVERGENCE UNIT
CONVERGENCE OUT IK04 STK4274 R
CONVERGENCE OUT IK05 STK4274 G
CONVERGENCE OUT IK06 STK4274 B
HOR. DYNAMIC FOCUS
VER. DTNAMIC FPCUS
FOCUS OUTPUT QF01
R/G/B
(AP63/63B ONLY)
PHOTO SENSOR
SENSOR DISTRIBUTION P. W. B.

BLOCK DIAGRAM (2/2)

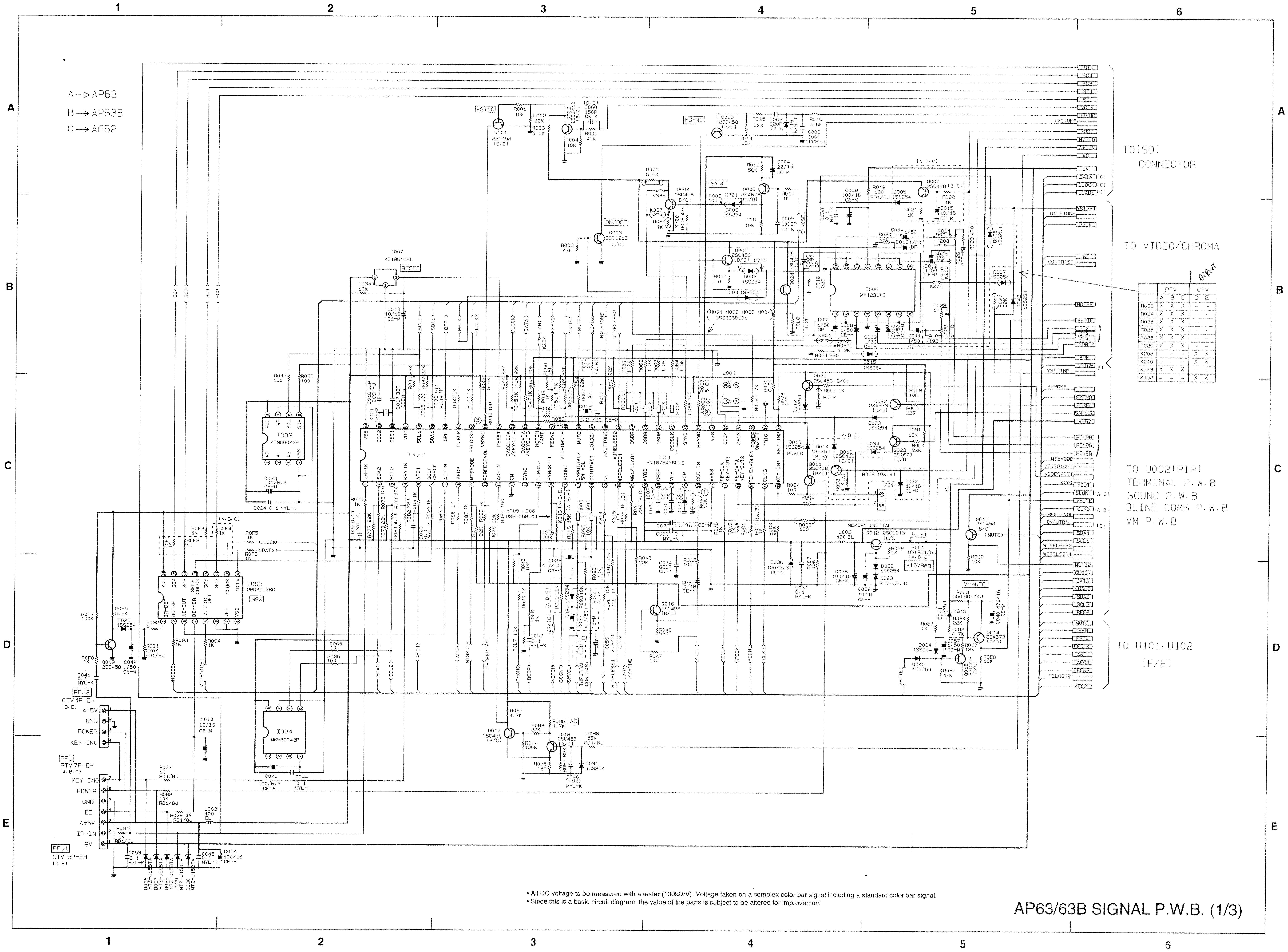

VIDEO 3 (AP63/AP63B)
L/R
V, Y/C
CONTROL P. W. B.
DIMMER
IR
POWER CH VOL AVX MENU
∧∨ ∧∨
FV
FJ
FJ
FJ
CONTROL
● I² C BUS 1
○ I² C BUS 2
◎ BUS
□ BUS
△ BUS
SIGNAL P. W. B.
1003
A / D
1002
MEMORY
1004
MEMORY
1006
RGB SW
RGB
U002
PinP UNIT
TO VM COIL
VM P. W. B.
TO POWER
ON/OFF
SYSTEM CONTROL
OSD
CCD
SYNC
Q004
SYNC SEP
AP62/63 3Line Comb
AP63B 3D Y/C
COMB FILTER
(U301)
TERMINAL P. W. B.
QY54
BUFFER VOL
QY51
SYNC CHIP CLAMP
QY53
V SYNC SEP
QY04
SUPER CONTRAST
(ONLY AP63/AP63B)
C
Y
V
TV OUT
MATRIX SW
PinP OUT
MONITOR OUT
IY01
MONO
L/R
V, Y/C
ANT A
SW
ANT B
ANT SW.
U102
FRONT-END (FOR PinP)
FRONT-END /MTS DECORDER
U101
PERFECT VOL.
IA03
IA05
SUB WOOFER CONTROL
(ONLY AP63/AP63B)
IA02
HIFI SW
HIFI AMP
QA01 ~QA04
L/R (F)
V, Y/C L/R V L/R
VIDEO 1 IN
VIDEO 2 IN
V L/R
MONITOR OUT
SUB WOOFER OUT.
L/R
HIFI OUT PUT
L/R
TRANSMITTER OUT
TO DEF.
SIGNAL SUB P. W. B.
H. DRIVE
V. DRIVE
1501
H. SYNC
V. SYNC
VIDEO/CHROMA/DEF.
R-Y/G-Y
B-Y
Y
Y C
1502
DAC
Y1
CPT P. W. B.
VIDEO OUT PUT
CPT
QA53
TILT
1401
AUDIO OUT PUT (FRONT)
SL
SR
SP. (FRONT)
IS09
CENTER SELECT
L/R (F)
MONO (C)
SC
AUDIO OUT PUT (CENTER)
IS11
SP. (CENTER)
IS01
DOLBY PRO LOGIC DECORDER
L/R
L/R (D)
MONO (C)
IS05
AUDIO CONTROL (F/PinP)
MONO (PinP)
IG01
GRAPHIC EQUALIZER
IS03
DOLBY PASSIVE DECORDER
MONO (S)
L/R (H/M)
S (H/M)
MONO (S)
IS10
AUDIO CONTROL (R/C)
MONO (C)
MONO (S)
L/R (R)
IS08
DYNAMIC BASS
MONO (C)
AUDIO OUTOPUT (REAR)
IS12
SP. TERMINAL (REAR)
SURROUND P. W. B.

PROTECTION CIRCUIT BLOCK DIAGRAM


5A
F903
D901
RECTIFY
S901
RELAY
I901
S. W. REG.
D975
PROTECT OPE. LED
L901 L902
NOISE FILTER
5A
F902
AC120V
T902
S. W. TRANS.
I903
I904
+B REG.
I902
T901
POWER TRANS.
LIVE
COLD
Q909
+B C. LIMIT
F906
1.6A
D941 D942
DOUBLE RECTIFY
Q915
+26V REG.
I907
+12V REG.
I906
-12V REG.
F905
4A
D951
D953
D950
D954
D952
+26V -27V +7V +27V +11V
POWER SUPPLY OPE. LED
Q903 Q912
Q913 Q914
PROTECTIVE
Q902
12V REG.
(REMOTE CONTROL)
D
+B (115V)
+11V (SIGNAL)
+33V (VT33)
+27V (CONV.)
+26V (VERT.)
+12V (CONV.)
+ 7V (SIGNAL)
-12V (CONV.)
-27V (CONV.)
+26V (AUDIO)
X RAY
SELF DIAGNOSTIC
+12V (A12)
D : OVER CURRENT AND SHORT CIRCUIT DETECTOR

BASIC CIRCUIT DIAGRAM

PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.


1
2
3
4
5
6
A
B
C
D
E
A → AP63
B → AP63B
C → AP62
TO (SD) CONNECTOR
TO VIDEO/CHROMA
TO U002 (PIP) TERMINAL P.W.B
SOUND P.W.B
3LINE COMB P.W.B
VM P.W.B
TO U101·U102 (F/E)
I001 MN1876476HHS
TVμP
I002 M6M80042P
I003 UPD4052BC
MPX
I004 M6M80042P
I006 MM1231XD
I007 M51951BSL
RESET
VSYNC
HSYNC
SYNC
ON/OFF
MEMORY INITIAL
V-MUTE
PFJ2 CTV 4P-EH (D·E)
A+5V
GND
POWER
KEY-IN0
PFJ PTV 7P-EH (A·B·C)
KEY-IN0
POWER
GND
EE
A+5V
IR-IN
9V
PFJ1 CTV 5P-EH (D·E)

	PTV			CTV	
	A	B	C	D	E
R023	X	X	X	–	–
R024	X	X	X	–	–
R025	X	X	X	–	–
R026	X	X	X	–	–
R028	X	X	X	–	–
R029	X	X	X	–	–
K208	–	–	–	X	X
K210	–	–	–	X	X
K273	X	X	X	–	–
K192	–	–	–	X	X

Direct

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

AP63/63B SIGNAL P.W.B. (1/3)

Circuit No.	Pin No.	Voltage VDC
I001	1	0.1
	2	5.0
	3	5.0
	4	5.0
	5	2.5
	6	0.5
	7	2.0
	8	2.4
	9	0
	10	0
	11	2.4
	12	0
	13	2.5
	14	0.1
	15	0
	16	0
	17	1.8
	18	7.1
	19	8.9
	20	5.0
	21	0
	22	5.0
	23	0
	24	1.3
	25	1.2
	26	2.1
	27	0
	28	4.8
	29	4.9
	30	0.2
	31	0
	32	5.0
	33	3.8
	34	0
	35	5.0
	36	2.6
	37	2.7
	38	0
	39	4.3
	40	4.3
	41	0
	42	0
	43	0
	44	0
	45	0.1
	46	0
	47	5.0
	48	0.1
	49	0
	50	0
	51	1.0
	52	5.0
	53	5.0
	54	5.0
	55	4.9
	56	5.2
	57	0
	58	5.0
	59	5.0
	60	5.0
	61	5.0
	62	2.5
	63	2.4
	64	0

Circuit No.	Pin No.	Voltage VDC
I002	1	0
	2	0
	3	0
	4	0
	5	5.0
	6	5.0
	7	0
	8	5.0

Circuit No.	Pin No.	Voltage VDC
I003	1	0
	2	3.7
	3	2.0
	4	2.0
	5	0
	6	0
	7	0
	8	0
	9	5.0
	10	5.0
	11	0.5
	12	0.4
	13	0.5
	14	0.1
	15	0.2
	16	5.0

Circuit No.	Pin No.	Voltage VDC
I004	1	0
	2	0
	3	0
	4	0
	5	5.0
	6	5.0
	7	0
	8	5.0

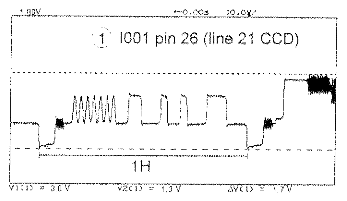
Circuit No.	Pin No.	Voltage VDC
I006	1	4.4
	2	0
	3	3.6
	4	0
	5	3.6
	6	3.6
	7	0
	8	4.4
	9	4.4
	10	0
	11	4.4
	12	0
	13	7.8
	14	4.4
	15	0
	16	4.4

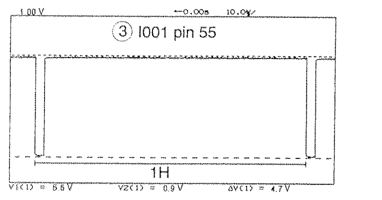
Circuit No.	Pin No.	Voltage VDC
I007	1	5.0
	2	0
	3	5.0

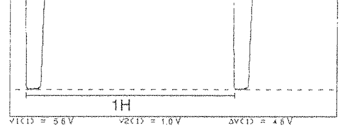
Circuit No.	Pin No.	Voltage VDC
Q001	B	0.1
	C	4.9
	E	0
Q002	B	0.6
	C	0.2
	E	0
Q003	B	0.7
	C	0.1
	E	0
Q004	B	0.1
	C	4.3
	E	0
Q005	B	-0.1
	C	4.3
	E	0
Q006	B	4.5
	C	0.4
	E	4.4
Q007	B	0
	C	5.0
	E	0
Q008	B	0
	C	5.0
	E	0
Q010	B	0
	C	5.0
	E	0.1

Circuit No.	Pin No.	Voltage VDC
Q011	B	0
	C	5.0
	E	0.1
Q012	B	5.7
	C	8.6
	E	5.1
Q013	B	0.1
	C	9.1
	E	0
Q014	B	12.5
	C	0
	E	12.5
Q015	B	0
	C	12.5
	E	0
Q016	B	3.8
	C	9.0
	E	3.1
Q017	B	0.6
	C	2.4
	E	0.2
Q018	B	0.4
	C	2.4
	E	0.2
Q019	B	0.7
	C	0.1
	E	0

Circuit No.	Pin No.	Voltage VDC
Q021	B	0
	C	3.8
	E	0.1
Q022	B	3.2
	C	3.8
	E	3.8
Q023	B	3.2
	C	3.8
	E	3.8
Q024	B	0
	C	5.0
	E	0


① I001 pin 26 (line 21 CCD)

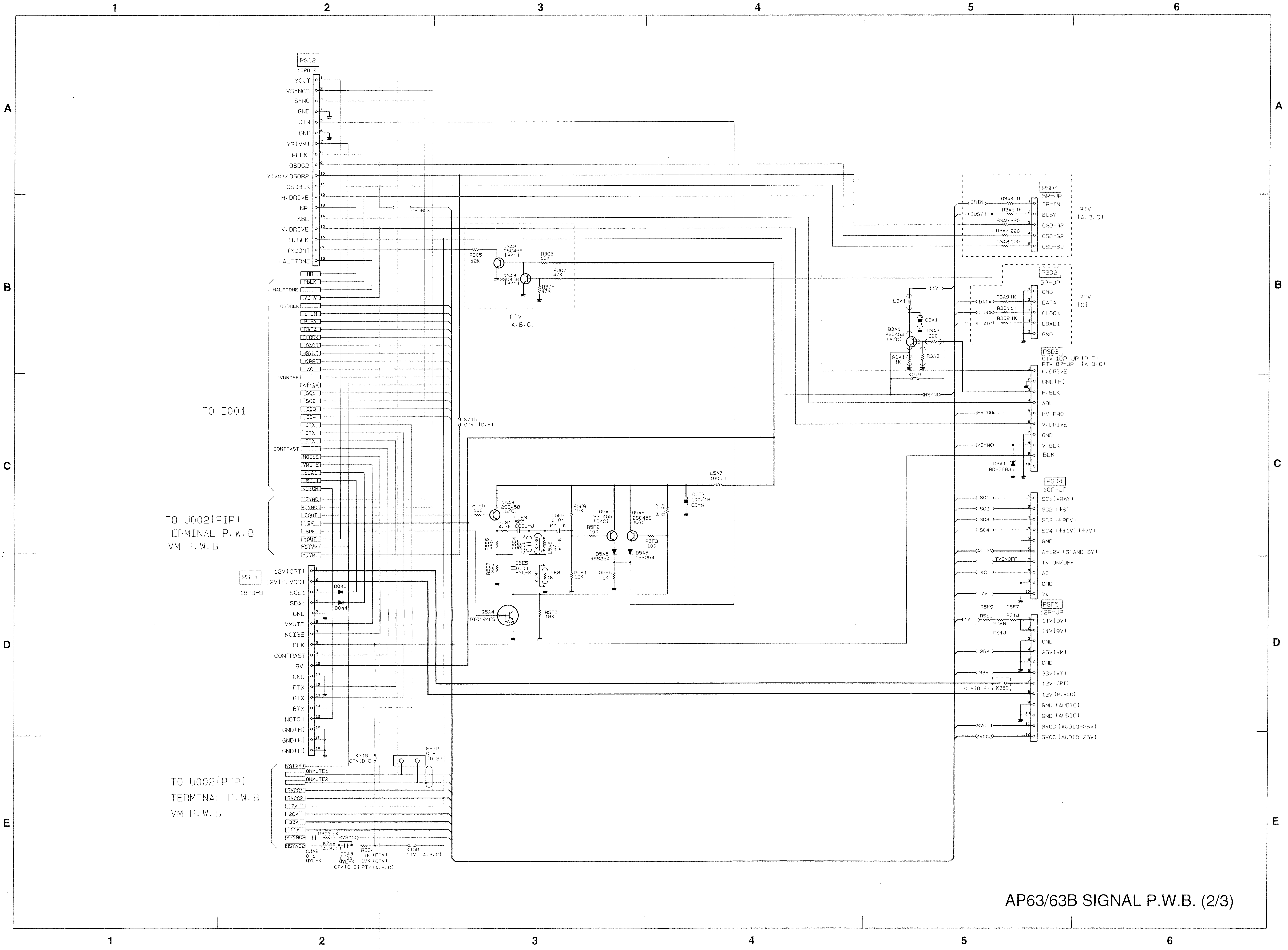

③ I001 pin 55


② I001 pin 39

MC-Service

BASIC CIRCUIT DIAGRAM

PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.


1
2
3
4
5
6
A
B
C
D
E
PSI2
18PB-B
YOUT
VSYNC3
SYNC
GND
CIN
GND
YS(VM)
PBLK
OSDG2
Y(VM)/OSDR2
OSDBLK
H.DRIVE
NR
ABL
V.DRIVE
H.BLK
TXCONT
HALFTONE
TO I001
TO U002(PIP)
TERMINAL P.W.B
VM P.W.B
PSI1
18PB-B
12V(CPT)
12V(H.VCC)
SCL1
SDA1
GND
VMUTE
NOISE
BLK
CONTRAST
9V
GND
RTX
GTX
BTX
NOTCH
GND(H)
GND(H)
GND(H)
D043
D044
K715
CTV(D.E)
EH2P
CTV
(D.E)
ONMUTE1
ONMUTE2
R3C3 1K
K729
(A.B.C)
C3A2
0.1
MYL-K
C3A3
0.01
MYL-K
CTV(D.E)
R3C4
1K (PTV)
15K (CTV)
PTV (A.B.C)
K158
PTV (A.B.C)
Q3A2
2SC458
(B/C)
Q3A3
2SC458
(B/C)
R3C5
12K
R3C6
10K
R3C7
47K
R3C8
47K
PTV
(A.B.C)
Q5A3
2SC458
(B/C)
R5E5
100
R5G1
4.7K
C5E3
56P
CCSL-J
C5E6
0.01
MYL-K
R5E9
15K
Q5A5
2SC458
(B/C)
Q5A6
2SC458
(B/C)
R5F2
100
R5F3
100
R5F4
8.2K
D5A5
1SS254
D5A6
1SS254
L5A7
100uH
C5E7
100/16
CE-M
L5A6
47
LAL-K
C5E5
0.01
MYL-K
R5E8
1K
R5F1
12K
R5F6
1K
Q5A4
DTC124ES
R5F5
18K
PSD1
5P-JP
IR-IN
BUSY
OSD-R2
OSD-G2
OSD-B2
R3A4 1K
R3A5 1K
R3A6 220
R3A7 220
R3A8 220
PTV
(A.B.C)
PSD2
5P-JP
GND
DATA
CLOCK
LOAD1
GND
R3A9 1K
R3C1 1K
R3C2 1K
PTV
(C)
L3A1
C3A1
Q3A1
2SC458
(B/C)
R3A2
220
R3A1
1K
R3A3
K279
11V
PSD3
CTV 10P-JP (D.E)
PTV 8P-JP (A.B.C)
H.DRIVE
GND(H)
H.BLK
ABL
HV.PRO
V.DRIVE
GND
V.BLK
BLK
D3A1
RD36EB3
PSD4
10P-JP
SC1(XRAY)
SC2 (+B)
SC3 (+26V)
SC4 (+11V) (+7V)
GND
A+12V (STAND BY)
TV ON/OFF
AC
GND
7V
PSD5
12P-JP
11V(9V)
11V(9V)
GND
26V(VM)
GND
33V(VT)
12V(CPT)
12V(H.VCC)
GND (AUDIO)
GND (AUDIO)
SVCC (AUDIO+26V)
SVCC (AUDIO+26V)
R5F9
R5F7
R51J
R5F8
K360
CTV(D.E)
1
2
3
4
5
6

AP63/63B SIGNAL P.W.B. (2/3)

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

Circuit No.	Pin No.	Voltage VDC
Q3A2	B	0.7
	C	0
	E	0
Q3A3	B	0
	C	0.7
	E	0
Q5A3	B	3.8
	C	9.1
	E	3.1
Q5A4	B	4.8
	C	0
	E	0
Q5A5	B	3.9
	C	9.1
	E	3.3
Q5A6	B	0
	C	9.1
	E	0.1

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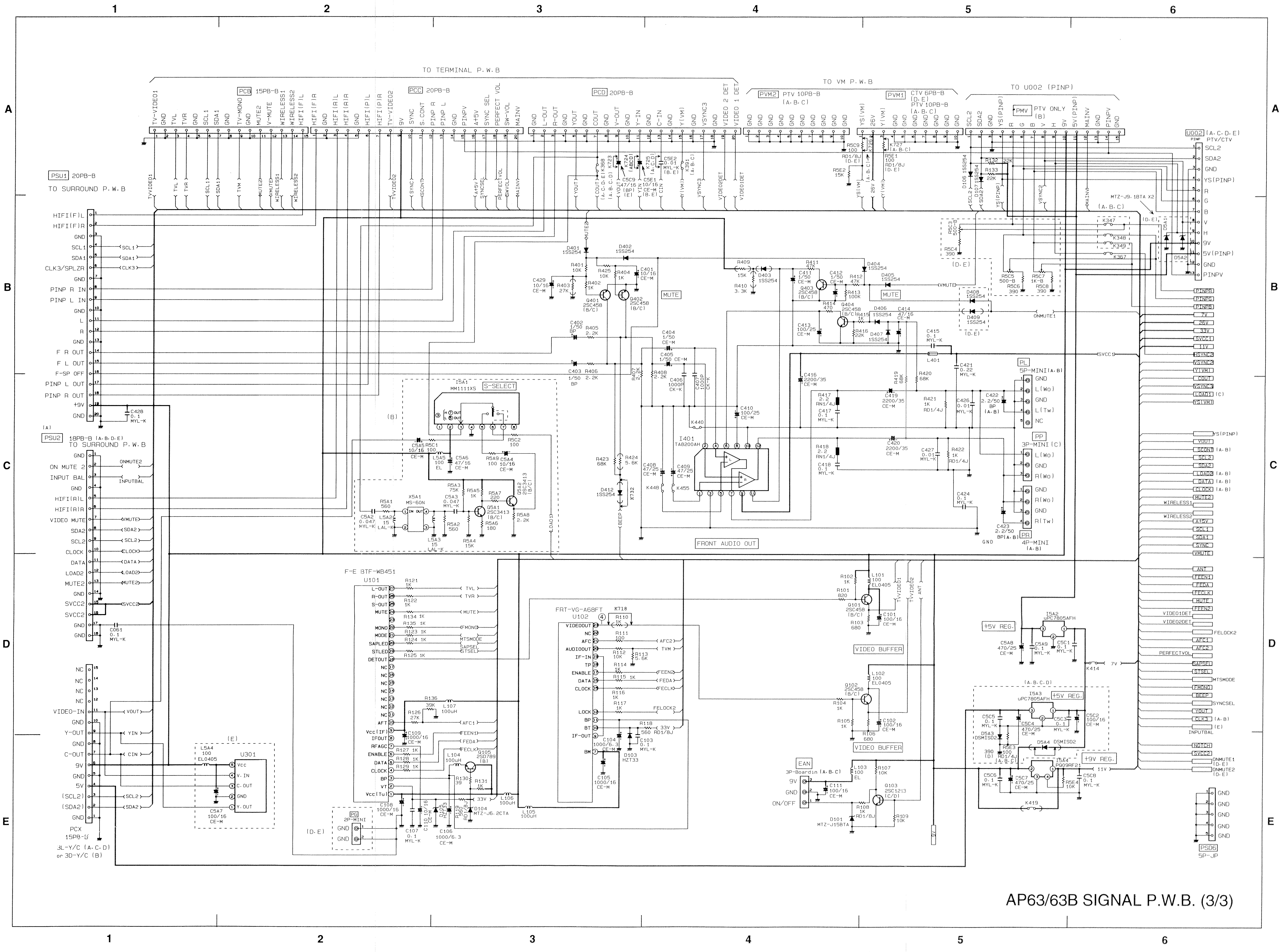
BASIC CIRCUIT DIAGRAM


1
2
3
4
5
6
A
B
C
D
E
TO TERMINAL P.W.B
TO VM P.W.B
TO U002 (PINP)
PCB 15PB-B
PCC 20PB-B
PCD 20PB-B
PVM2 PTV 10PB-B (A.B.C)
PVM1 CTV 6PB-B (D.E) PTV 10PB-B (A.B.C)
PMV PTV ONLY (B)
U002 (A.C.D.E) PTV/CTV
PSU1 20PB-B TO SURROUND P.W.B
PSU2 18PB-B (A.B.D.E) TO SURROUND P.W.B
PCX 15PB-B JL-Y/C (A.C.D) or 3D-Y/C (B)
I5A1 MM1111XS S-SELECT
I401 TA8200AH
FRONT AUDIO OUT
MUTE
PL 5P-MINI (A.B)
PP 3P-MINI (C)
PR 4P-MINI (A.B)
F-E BTF-WB451 U101
FRT-VG-A68FT U102
U301
VIDEO BUFFER
EAN 3P-Boardin (A.B.C)
+5V REG.
I5A2 uPC7805AFH
I5A3 uPC7805AFH
+9V REG.
I5A4 PQ09RF21
PG 2P-MINI
PSD6 5P-JP

AP63/63B SIGNAL P.W.B. (3/3)

Circuit No.	Pin No.	Voltage VDC
I401	1	1.6
	2	0
	3	0
	4	0
	5	1.6
	6	9.1
	7	12.7
	8	2.0
	9	27.1
	10	0
	11	1.2
	12	12.4

Circuit No.	Pin No.	Voltage VDC
I5A2	1	8.3
	2	0
	3	5.0

Circuit No.	Pin No.	Voltage VDC
I5A3	1	8.3
	2	0.3
	3	5.2

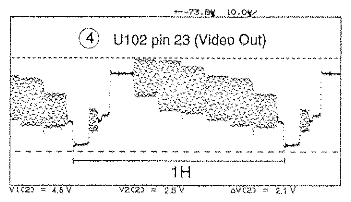
Circuit No.	Pin No.	Voltage VDC
I5A4	1	11.1
	2	9.1
	3	0
	4	11.1

AP63B ONLY

Circuit No.	Pin No.	Voltage VDC
I5A1	1	0
	2	8.9
	3	4.2
	4	0
	5	5.0
	6	0
	7	5.0
	8	0.5

Circuit No.	Pin No.	Voltage VDC
Q5A1	B	1.3
	C	5.4
	E	0.6
Q5A2	B	5.4
	C	8.9
	E	4.7

Circuit No.	Pin No.	Voltage VDC
Q101	B	6.6
	C	8.9
	E	5.9
Q102	B	2.3
	C	8.9
	E	1.6
Q103	B	0.6
	C	0
	E	0
Q105	B	6.3
	C	8.8
	E	5.7
Q401	B	0
	C	9.1
	E	0
Q402	B	0.7
	C	0
	E	0
Q403	B	0.6
	C	0
	E	0
Q404	B	0
	C	9.1
	E	0

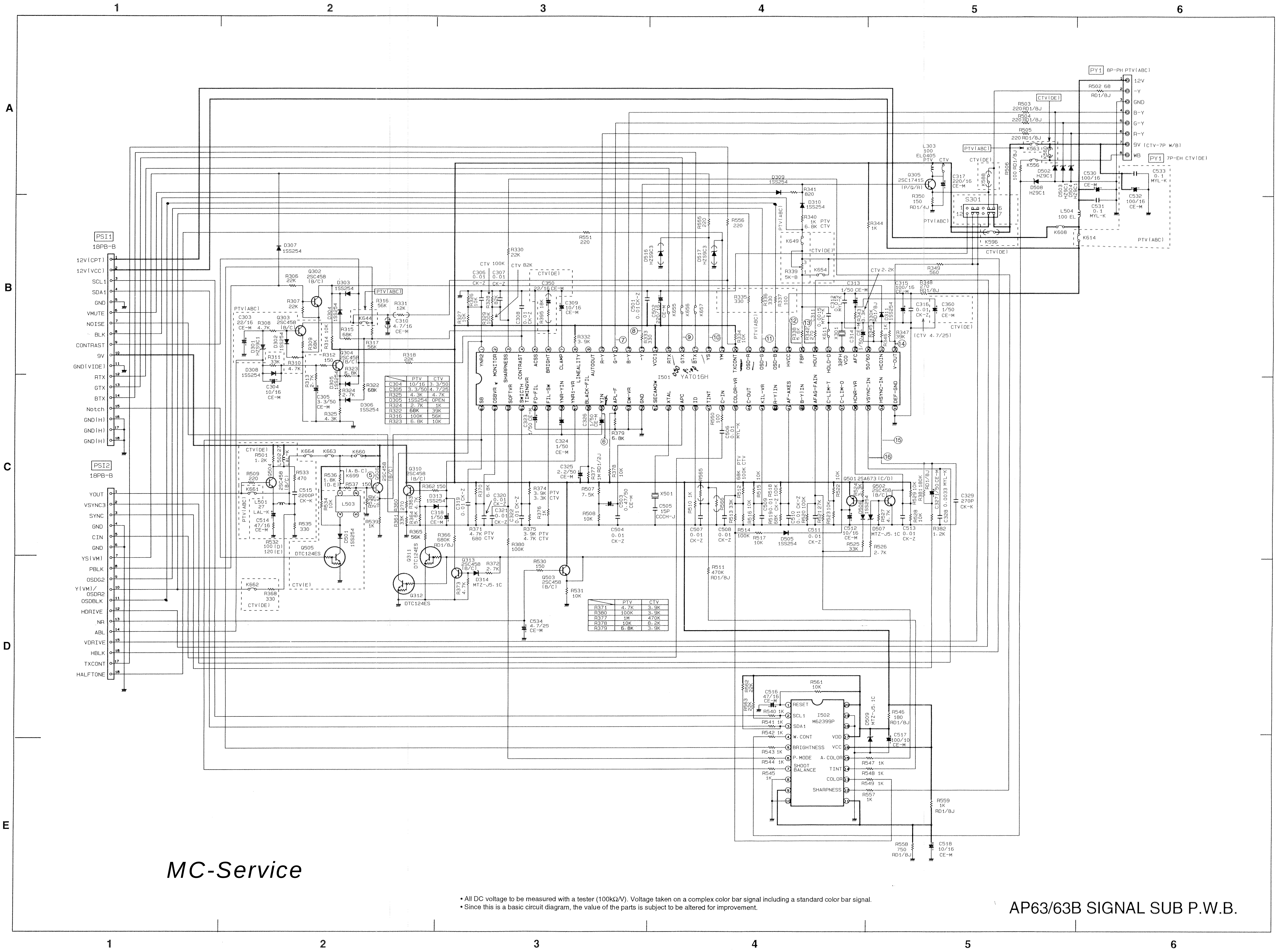


- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

MC-Service

BASIC CIRCUIT DIAGRAM

PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.


1
2
3
4
5
6
A
B
C
D
E
PSI1 18PB-B
12V(CPT)
12V(VCC)
SCL1
SDA1
GND
VMUTE
NOISE
BLK
CONTRAST
9V
GND(VIDE)
RTX
GTX
BTX
Notch
GND(H)
PSI2 18PB-B
YOUT
VSYNC3
SYNC
GND
CIN
YS(VM)
PBLK
OSDG2
Y(VM)/OSDR2
OSDBLK
HDRIVE
NR
ABL
VDRIVE
HBLK
TXCONT
HALFTONE
PY1 6P-PH PTV(ABC)
PY1 7P-EH CTV(DE)
12V
-Y
GND
B-Y
G-Y
R-Y
9V
WB
I501 YAT016H
I502 M62399P
RESET
SCL1
SDA1
W.CONT
BRIGHTNESS
P.MODE
SHOOT BALANCE
VDD
VCC
A.COLOR
TINT
COLOR
SHARPNESS
S301
L503
X501
MC-Service

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

AP63/63B SIGNAL SUB P.W.B.

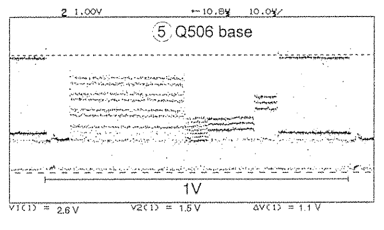
Circuit No.	Pin No.	Voltage VDC
I501	1	0
	2	0
	3	4.3
	4	7.0
	5	0
	6	4.8
	7	6.9
	8	8.9
	9	0.1
	10	5.1
	11	5.2
	12	5.3
	13	4.4
	14	9.0
	15	3.1
	16	3.1
	17	3.1
	18	0
	19	0
	20	4.9
	21	0
	22	0
	23	0
	24	7.8
	25	1.3
	26	0.8
	27	0
	28	5.0
	29	5.6
	30	8.7
	31	7.5
	32	4.4

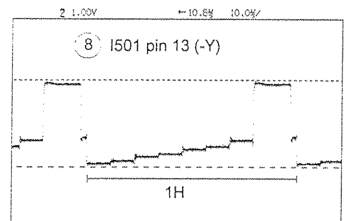
Circuit No.	Pin No.	Voltage VDC
I501	33	0
	34	7.0
	35	6.4
	36	0
	37	4.3
	38	4.0
	39	6.9
	40	1.3
	41	3.6
	42	1.3
	43	4.1
	44	6.5
	45	4.7
	46	3.1
	47	4.5
	48	0.7
	49	5.8
	50	5.5
	51	1.4
	52	0
	53	0
	54	3.6
	55	3.7
	56	6.0
	57	4.4
	58	3.8
	59	0
	60	4.2
	61	4.5
	62	6.0
	63	3.7
	64	5.7

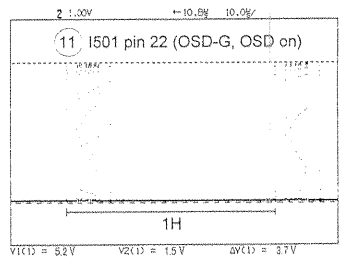
Circuit No.	Pin No.	Voltage VDC
I502	1	5.3
	2	5.2
	3	5.2
	4	0
	5	5.8
	6	8.8
	7	5.7
	8	0
	9	3.7
	10	0
	11	3.7
	12	4.4
	13	4.4
	14	4.5
	15	8.8
	16	9.0
	17	5.3
	18	0
	19	0
	20	5.3

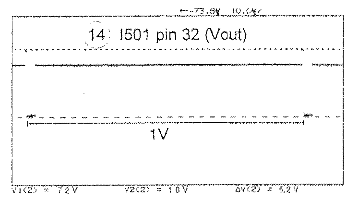
Circuit No.	Pin No.	Voltage VDC
Q302	B	0
	C	9.0
	E	0
Q303	B	0
	C	5.1
	E	0
Q304	B	7.9
	C	9.0
	E	7.2
Q305	B	4.5
	C	8.9
	E	3.9
Q310	B	4.4
	C	9.0
	E	3.8
Q311	B	8.1
	C	0
	E	0
Q312	B	8.1
	C	0
	E	0
Q313	B	0.7
	C	0
	E	0

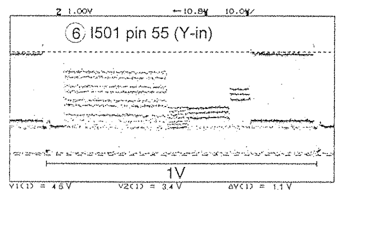
Circuit No.	Pin No.	Voltage VDC
Q501	B	9.0
	C	4.2
	E	9.0
Q502	B	0.7
	C	0
	E	0
Q503	B	8.8
	C	9.0
	E	8.1
Q506	B	6.5
	C	9.0
	E	5.8

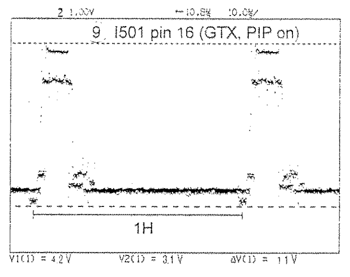


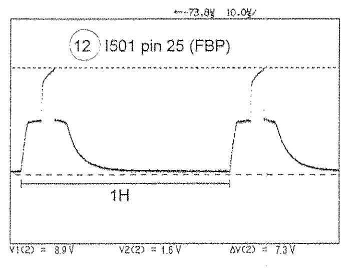


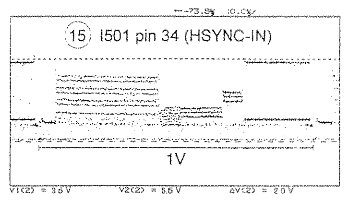


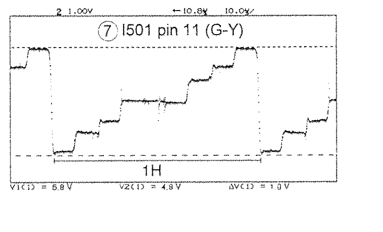


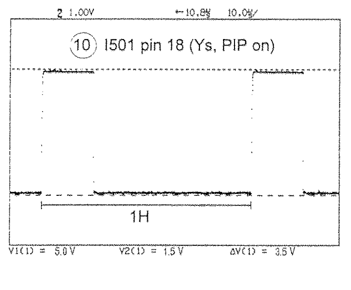


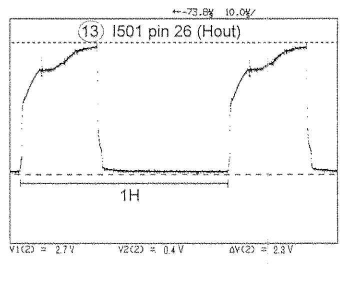


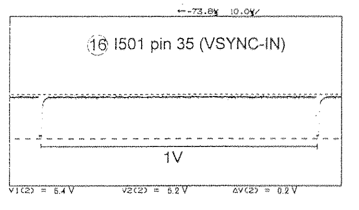






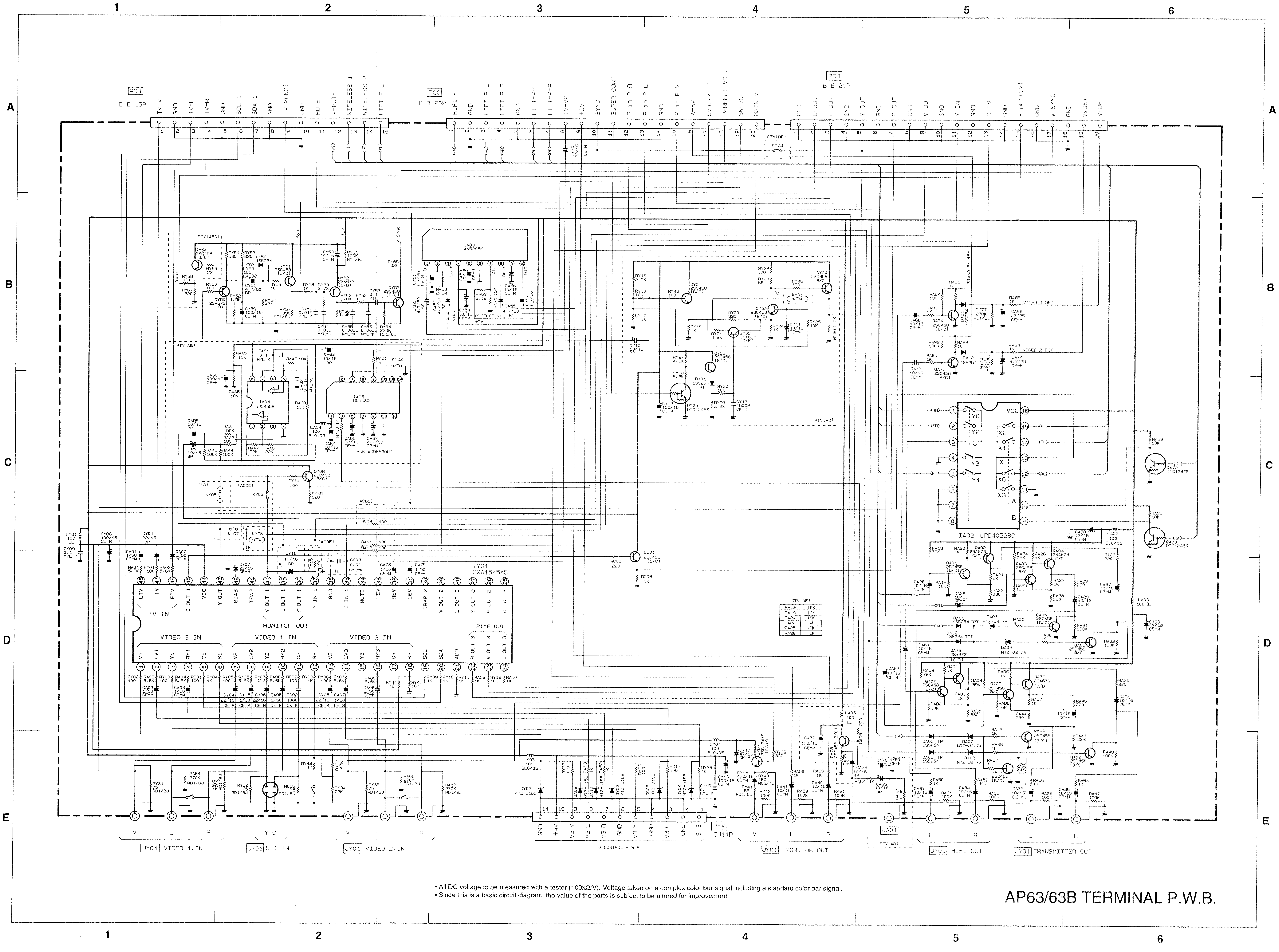






BASIC CIRCUIT DIAGRAM

PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.


1
2
3
4
5
6
A
B
C
D
E
PCB
B-B 15P
TV-V
GND
TV-L
TV-R
GND
SCL 1
SDA 1
GND
TV(MONO)
GND
MUTE
V-MUTE
WIRELESS 1
WIRELESS 2
HIFI-F-L
PCC
B-B 20P
HIFI-F-R
GND
HIFI-R-L
HIFI-R-R
GND
HIFI-P-L
HIFI-P-R
TV-V2
+9V
SYNC
SUPER CONT
P in P A
P in P L
GND
P in P V
A+5V
Sync-kill
PERFECT VOL
SW-VOL
MAIN V
PCD
B-B 20P
GND
L-OUT
R-OUT
GND
Y OUT
GND
C OUT
GND
V OUT
GND
Y IN
GND
C IN
GND
Y OUT(VM)
GND
V.SYNC
GND
V2DET
V1DET
CTV(DE)
KYC3
PTV(ABC)
IA03
AN5265K
PERFECT VOL
PTV(AB)
IA04
uPC4558
IA05
M51132L
SUB WOOFEROUT
IA02 uPD4052BC
VCC
CTV(DE)
IY01
CXA1545AS
TV IN
MONITOR OUT
VIDEO 3 IN
VIDEO 1 IN
VIDEO 2 IN
PinP OUT
STAND BY +5V
VIDEO 1 DET
VIDEO 2 DET
QA72 DTC124ES
QA73 DTC124ES
V
L
R
JY01 VIDEO 1 IN
Y C
JY01 S 1 IN
JY01 VIDEO 2 IN
GND
+9V
V3 V
V3 L
V3 R
GND
V3 Y
GND
V3 C
GND
S-3
PFV
EH11P
TO CONTROL P.W.B
JY01 MONITOR OUT
JA01
PTV(AB)
JY01 HIFI OUT
JY01 TRANSMITTER OUT

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

AP63/63B TERMINAL P.W.B.

Circuit No.	Pin No.	Voltage VDC
IA02	1	4.1
	2	4.1
	3	4.1
	4	0
	5	4.1
	6	0
	7	0
	8	0
	9	9.0
	10	0
	11	0
	12	4.1
	13	4.1
	14	4.1
	15	4.1
	16	9.0

Circuit No.	Pin No.	Voltage VDC
IA03	1	4.5
	2	4.0
	3	4.5
	4	9.0
	5	4.5
	6	0
	7	0
	8	4.5
	9	1.9
	10	4.5

Circuit No.	Pin No.	Voltage VDC
IA04	1	4.5
	2	4.5
	3	4.4
	4	0
	5	4.5
	6	4.5
	7	4.5
	8	9.0

Circuit No.	Pin No.	Voltage VDC
IA05	1	8.9
	2	3.8
	3	3.4
	4	5.5
	5	8.8
	6	0
	7	0
	8	3.1
	9	0
	10	0
	11	0
	12	5.5
	13	0
	14	3.8

Circuit No.	Pin No.	Voltage VDC
IY01	1	4.6
	2	4.6
	3	4.6
	4	4.6
	5	4.6
	6	2.5
	7	4.6
	8	4.6
	9	4.6
	10	4.6
	11	4.6
	12	2.5
	13	4.6
	14	4.6
	15	4.6
	16	4.6
	17	4.6
	18	4.3
	19	5.0
	20	5.0
	21	0
	22	4.7
	23	4.5
	24	4.7

Circuit No.	Pin No.	Voltage VDC
IY01	25	4.5
	26	4.7
	27	4.5
	28	4.7
	29	4.5
	30	4.5
	31	4.6
	32	4.6
	33	4.6
	34	0
	35	4.6
	36	0
	37	4.6
	38	4.7
	39	4.7
	40	4.5
	41	4.5
	42	4.7
	43	4.5
	44	8.9
	45	4.5
	46	4.6
	47	4.6
	48	4.6

Circuit No.	Pin No.	Voltage VDC
QA01	B	1.8
	C	8.3
	E	1.2
QA02	B	8.3
	C	4.1
	E	9.0
QA03	B	1.8
	C	8.3
	E	1.2
QA04	B	8.3
	C	4.2
	E	9.0
QA05	B	0
	C	0
	E	0
QA06	B	0
	C	0
	E	0
QA07	B	1.8
	C	8.3
	E	1.2
QA09	B	1.8
	C	8.3
	E	1.2
QA11	B	0
	C	0
	E	0
QA12	B	0
	C	0
	E	0

Circuit No.	Pin No.	Voltage VDC
QA72	B	4.9
	C	0
	E	0
QA73	B	0.1
	C	9.0
	E	0
QA74	B	0.6
	C	0
	E	0
QA75	B	0.6
	C	0.1
	E	0
QA76	B	3.4
	C	9.0
	E	2.8
QA77	B	0
	C	0
	E	0
QA78	B	8.3
	C	4.1
	E	9.0
QA79	B	8.3
	C	4.2
	E	9.0

Circuit No.	Pin No.	Voltage VDC
QC01	B	4.5
	C	9.0
	E	3.8
QY01	B	5.2
	C	9.0
	E	4.5
QY02	B	5.1
	C	7.2
	E	4.5
QY03	B	7.6
	C	4.5
	E	4.5
QY04	B	7.2
	C	9.0
	E	6.5
QY05	B	0
	C	8.9
	E	0
QY06	B	8.9
	C	9.0
	E	8.3
QY07	B	4.4
	C	8.9
	E	3.8
QY08	B	4.5
	C	9.0
	E	3.8

Circuit No.	Pin No.	Voltage VDC
QY50	B	4.5
	C	0
	E	5.1
QY51	B	6.0
	C	9.0
	E	5.3
QY52	B	5.3
	C	0.1
	E	5.2
QY53	B	-0.2
	C	6.3
	E	0
QY54	B	5.1
	C	9.0
	E	4.4

BASIC CIRCUIT DIAGRAM

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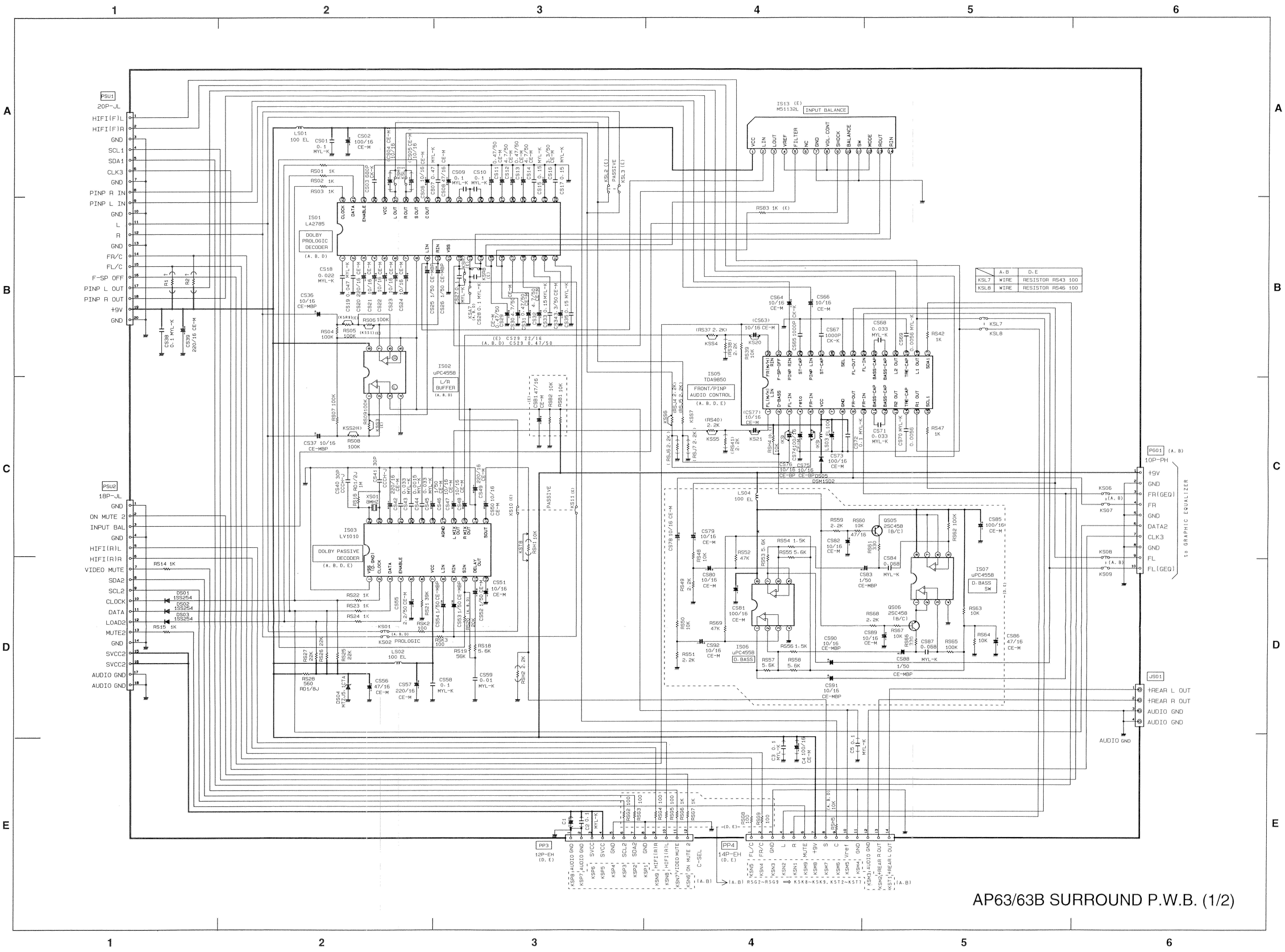
1
2
3
4
5
6
A
B
C
D
E
PSU1
20P-JL
HIFI(F)L
HIFI(F)R
GND
SCL1
SDA1
CLK3
GND
PINP R IN
PINP L IN
GND
L
R
GND
FR/C
FL/C
F-SP OFF
PINP L OUT
PINP R OUT
+9V
GND
PSU2
18P-JL
GND
ON MUTE 2
INPUT BAL
GND
HIFI(R)L
HIFI(R)R
VIDEO MUTE
SDA2
SCL2
CLOCK
DATA
LOAD2
MUTE2
GND
SVCC2
SVCC2
AUDIO GND
AUDIO GND
IS01
LA2785
DOLBY PROLOGIC DECODER
(A, B, D)
IS02
uPC4558
L/R BUFFER
(A, B, D)
IS03
LV1010
DOLBY PASSIVE DECODER
(A, B, D, E)
IS05
TDA9850
FRONT/PINP AUDIO CONTROL
(A, B, D, E)
IS06
uPC4558
D.BASS
IS07
uPC4558
D.BASS SW
IS13 (E)
M51132L
INPUT BALANCE
QS05
2SC458
(B/C)
QS06
2SC458
(B/C)
DS01 1SS254
DS02 1SS254
DS03 1SS254
DS04 MTZJ5.1C
LS01 100 EL
LS02 100 EL
LS04 100 EL
PASSIVE
PROLOGIC
KSL7
KSL8
A·B
D·E
WIRE
RESISTOR RS43 100
RESISTOR RS46 100
PG01 (A, B)
10P-PH
+9V
GND
FR(GEQ)
FR
GND
DATA2
CLK3
GND
FL
FL(GEQ)
to GRAPHIC EQUALIZER
JS01
+REAR L OUT
+REAR R OUT
AUDIO GND
AUDIO GND
PP3
12P-EH
(D, E)
PP4
14P-EH
(D, E)
AUDIO GND
SVCC
GND
SDA2
SCL2
HIFI(R)R
HIFI(R)L
VIDEO MUTE
ON MUTE 2
C-SEL
FL/C
FR/C
GND
L
R
MUTE
+9V
S
C
Vref
GND
AUDIO GND
REAR R OUT
REAR L OUT
(A, B)
RSG2~RSG9 ⇒ KSK8~KSK9, KST2~KST7

AP63/63B SURROUND P.W.B. (1/2)

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

Circuit No.	Pin No.	Voltage VDC
IS01	1	4.4
	2	4.4
	3	4.5
	4	4.5
	5	4.5
	6	4.5
	7	4.5
	8	4.5
	9	4.4
	10	4.4
	11	0
	12	4.5
	13	4.5
	14	4.5
	15	4.5
	16	5.3
	17	4.5
	18	5.2
	19	5.3
	20	5.3
	21	5.3

Circuit No.	Pin No.	Voltage VDC
IS01	22	4.4
	23	4.3
	24	4.4
	25	5.2
	26	4.5
	27	5.2
	28	4.5
	29	4.5
	30	4.5
	31	4.5
	32	4.5
	33	4.5
	34	4.5
	35	4.5
	36	4.5
	37	4.5
	38	8.9
	39	0.1
	40	5.2
	41	5.1
	42	5.2

Circuit No.	Pin No.	Voltage VDC
IS02	1	4.5
	2	4.5
	3	4.5
	4	0
	5	4.5
	6	4.5
	7	4.5
	8	8.9

Circuit No.	Pin No.	Voltage VDC
IS03	1	0
	2	5.2
	3	5.2
	4	5.2
	5	2.3
	6	0.7
	7	8.9
	8	4.4
	9	4.4
	10	4.5
	11	4.5
	12	4.5
	13	4.5
	14	4.5
	15	4.5
	16	4.5
	17	0
	18	4.5
	19	4.5
	20	4.5
	21	4.5
	22	4.8
	23	2.3
	24	2.4

Circuit No.	Pin No.	Voltage VDC
IS05	1	4.1
	2	0
	3	4.1
	4	8.1
	5	4.1
	6	8.2
	7	4.1
	8	0
	9	4.1
	10	4.1
	11	4.1
	12	4.1
	13	4.1
	14	4.1
	15	4.1
	16	5.0

Circuit No.	Pin No.	Voltage VDC
IS05	17	5.0
	18	4.1
	19	4.1
	20	4.1
	21	4.1
	22	4.1
	23	4.1
	24	4.1
	25	0
	26	4.1
	27	4.1
	28	4.1
	29	4.1
	30	4.1
	31	3.5
	32	4.1

BASIC CIRCUIT DIAGRAM

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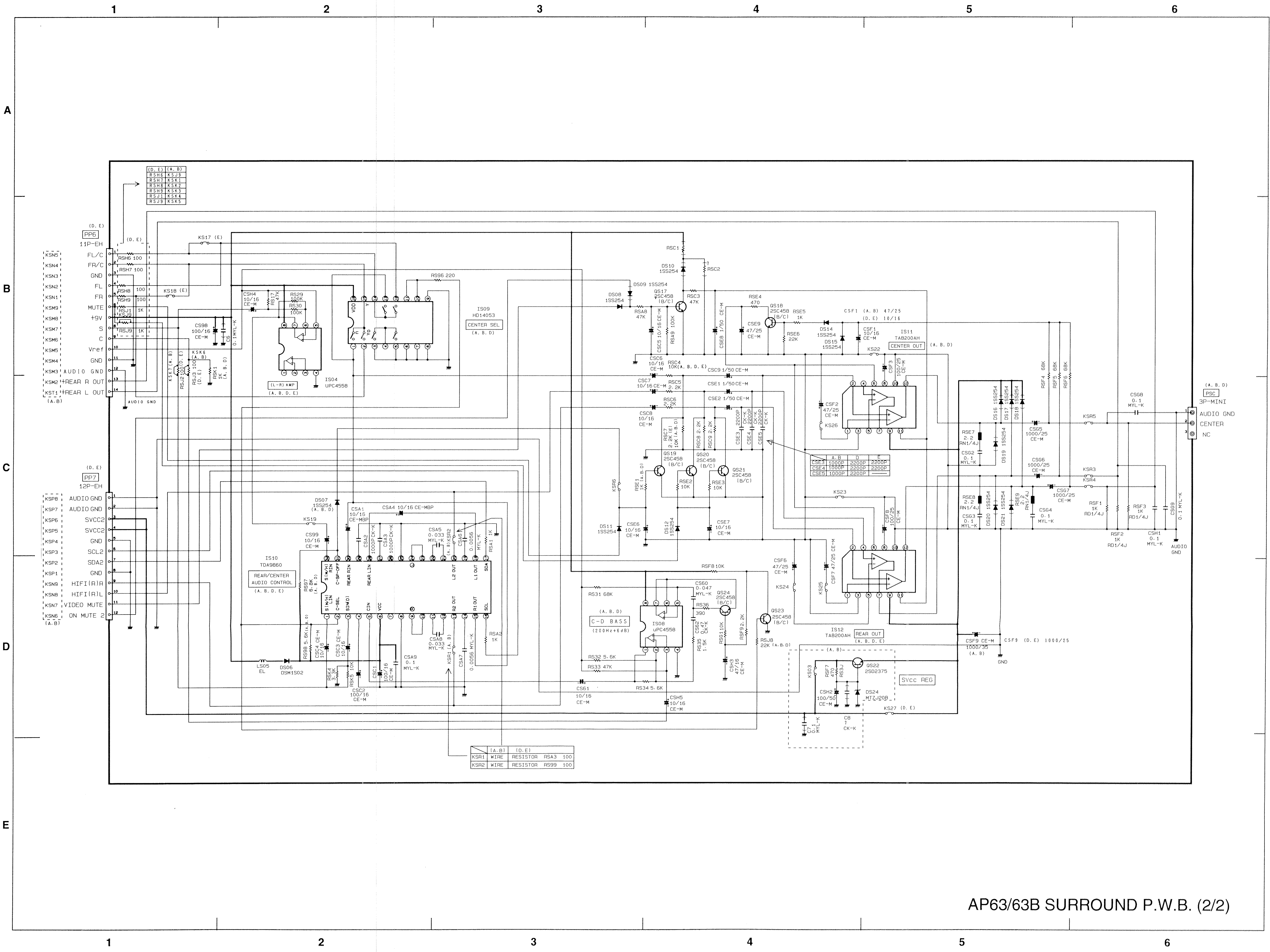
1
2
3
4
5
6
A
B
C
D
E
(D. E) (A. B)
RSH6 KSJ9
RSH7 KSK1
RSH8 KSK2
RSH9 KSK3
RSJ1 KSK4
RSJ9 KSK5
(D. E)
PP6
11P-EH
KSN5 FL/C
KSN4 FR/C
KSN3 GND
KSN2 FL
KSN1 FR
KSM9 MUTE
KSM8 +9V
KSM7 S
KSM6 C
KSM5 Vref
KSM4 GND
KSM3 AUDIO GND
KSM2 +REAR R OUT
KST1 +REAR L OUT
(A.B)
AUDIO GND
RSH6 100
RSH7 100
RSH8 100
RSH9 100
RSJ1 1K
KSJ9
RSJ9 1K
KS17 (E)
KS18 (E)
CS98 100/16 CE-M
C6 0.1MYL-K
KSK7 (A. B)
RSJ2 100 (D. E)
RSJ3 100 (D. E)
KSK6 (A. B)
RSK1 1K (A. B. D)
CSH4 10/16 CE-M
RS17 47K
RS29 100K
RS30 100K
(L-R) AMP
(A. B. D. E)
IS04
UPC4558
VDD
RS96 220
IS09
HD14053
CENTER SEL
(A. B. D)
(D. E)
PP7
12P-EH
KSP8 AUDIO GND
KSP7 AUDIO GND
KSP6 SVCC2
KSP5 SVCC2
KSP4 GND
KSP3 SCL2
KSP2 SDA2
KSP1 GND
KSN9 HIFI(R)R
KSN8 HIFI(R)L
KSN7 VIDEO MUTE
KSN6 ON MUTE 2
(A.B)
DS07 1SS254 (A. B. D)
KS19
CS99 10/16 CE-M
CSA1 10/16 CE-MBP
CSA4 10/16 CE-MBP
IS10
TDA9860
REAR/CENTER AUDIO CONTROL
(A. B. D. E)
RS97 6.8K (A. B. D)
RS98 5.6K (A. B. D)
CSC4 CE-M 10/16
CSC3 CE-M 10/16
LS05 EL
DS06 DSM1S02
RSK4 3.3K
RSK5 10K
CSC2 100/16 CE-M
CSC1 10/16 CE-M
CSA9 0.1 MYL-K
CSA8 0.033 MYL-K
CSA5 0.033 MYL-K
RSA3 1K
RSA1 1K
KSR1 (A. B)
KSR2
(A. B) (D. E)
KSR1 WIRE RESISTOR RSA3 100
KSR2 WIRE RESISTOR RS99 100
S(M/H) RIN
C-SP-OFF
REAR RIN
REAR LIN
S(M/H) LIN
C-SEL
SIN(D)
CIN
VDC
L2 OUT
L1 OUT
SDA
R2 OUT
R1 OUT
SCL
RSC1
RSC2
DS10 1SS254
DS09 1SS254
DS08 1SS254
QS17 2SC458 (B/C)
RSC3 47K
RSA8 47K
RSA9 100K
CSC5 10/16 CE-M
CSC6 10/16 CE-M
RSC4 10K(A. B. D. E)
CSC9 1/50 CE-M
CSC7 10/16 CE-M
RSC5 2.2K
CSE1 1/50 CE-M
RSC6 2.2K
CSE2 1/50 CE-M
CSC8 10/16 CE-M
RSE4 470
QS18 2SC458 (B/C)
RSE5 1K
RSE6 22K
CSE9 47/25 CE-M
DS14 1SS254
DS15 1SS254
CSF1 (A. B) 47/25 (D. E) 10/16
IS11
TA8200AH
CENTER OUT
(A. B. D)
KS22
CSF3 100/25 CE-M
CSF2 47/25 CE-M
KS26
QS19 2SC458 (B/C)
QS20 2SC458 (B/C)
QS21 2SC458 (B/C)
RSE2 10K
RSE3 10K
(A. B) (D) (E)
CSE3 1000P 2200P 2200P
CSE4 1000P 2200P 2200P
CSE5 1000P 2200P
KS23
KSR6
DS11 1SS254
CSE6 10/16 CE-M
DS12 1SS254
CSE7 10/16 CE-M
RSF8 10K
CSF6 47/25 CE-M
KS24
KS25
CSF7 47/25 CE-M
CSF8 100/25 CE-M
RS31 68K
(A. B. D)
C-D BASS
(200Hz+6dB)
IS08
UPC4558
CS50 0.047 MYL-K
QS24 2SC458 (B/C)
RS36 390
QS23 2SC458 (B/C)
RSJ8 22K (A. B. D)
RS32 5.6K
RS33 47K
CS51 10/16 CE-M
RS34 5.6K
CSH5 10/16 CE-M
CSH3 47/16 CE-M
IS12
TA8200AH
REAR OUT
(A. B. D. E)
(A. B)
KS03
RSF7 47Ω
QS22 2SD2375
CSH2 100/50 CE-M
DS24 MTZJ20B
SVcc REG
C7 0.1 MYL-K
C8 1 CK-K
KS27 (D. E)
CSF9 CE-M 1000/35 (A. B)
CSF9 (D. E) 1000/25
GND
RSF4 68K
RSF5 68K
RSF6 68K
DS16 1SS254
DS17 1SS254
DS18 1SS254
DS19 1SS254
DS20 1SS254
DS21 1SS254
RSE7 2.2 RN1/4J
CSG2 0.1 MYL-K
RSE8 2.2 RN1/4J
CSG3 0.1 MYL-K
RSE9 2.2 RN1/4J
CSG4 0.1 MYL-K
CSG5 1000/25 CE-M
CSG6 1000/25 CE-M
CSG7 1000/25 CE-M
CSG8 0.1 MYL-K
KSR5
KSR3
KSR4
RSF1 1K RD1/4J
RSF2 1K RD1/4J
RSF3 1K RD1/4J
CSH1 0.1 MYL-K
CSG9 0.1 MYL-K
AUDIO GND
(A. B. D)
PSC
3P-MINI
AUDIO GND
CENTER
NC

AP63/63B SURROUND P.W.B. (2/2)

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

Circuit No.	Pin No.	Voltage VDC
IS04	1	8.5
	2	1.0
	3	1.0
	4	0
	5	4.5
	6	4.5
	7	4.5
	8	8.9

Circuit No.	Pin No.	Voltage VDC
IS08	1	4.5
	2	4.5
	3	4.5
	4	0
	5	4.5
	6	4.5
	7	4.5
	8	8.9

Circuit No.	Pin No.	Voltage VDC
IS09	1	4.1
	2	4.1
	3	0
	4	0
	5	0
	6	0
	7	0
	8	0
	9	0
	10	0.3
	11	0.3
	12	4.1
	13	4.1
	14	4.1
	15	4.1
	16	8.9

Circuit No.	Pin No.	Voltage VDC
IS10	1	4.1
	2	0.3
	3	4.1
	4	8.1
	5	4.1
	6	8.2
	7	4.1
	8	0
	9	4.1
	10	4.1
	11	4.1
	12	4.1
	13	4.1
	14	4.1
	15	4.1
	16	4.9

Circuit No.	Pin No.	Voltage VDC
IS10	17	4.9
	18	4.1
	19	4.1
	20	4.1
	21	4.1
	22	4.1
	23	4.1
	24	4.1
	25	0
	26	4.1
	27	4.1
	28	4.1
	29	4.1
	30	4.1
	31	2.2
	32	4.1

Circuit No.	Pin No.	Voltage VDC
IS11	1	1.6
	2	0
	3	0
	4	0
	5	1.6
	6	6.6
	7	9.3
	8	5.0
	9	19.6
	10	0
	11	4.4
	12	9.1

Circuit No.	Pin No.	Voltage VDC
IS12	1	1.6
	2	0
	3	0
	4	0
	5	1.6
	6	6.6
	7	1.3
	8	5.1
	9	19.6
	10	0
	11	4.4
	12	9.0

Circuit No.	Pin No.	Voltage VDC
QS17	B	0
	C	4.3
	E	0
QS18	B	0
	C	6.6
	E	0
QS19	B	0.7
	C	0
	E	0
QS20	B	0
	C	0
	E	0
QS21	B	0
	C	0
	E	0
QS22	B	20.2
	C	27.0
	E	19.6
QS23	B	0.3
	C	7.2
	E	0
QS24	B	5.1
	C	4.5
	E	4.5

MC-Service

BASIC CIRCUIT DIAGRAM

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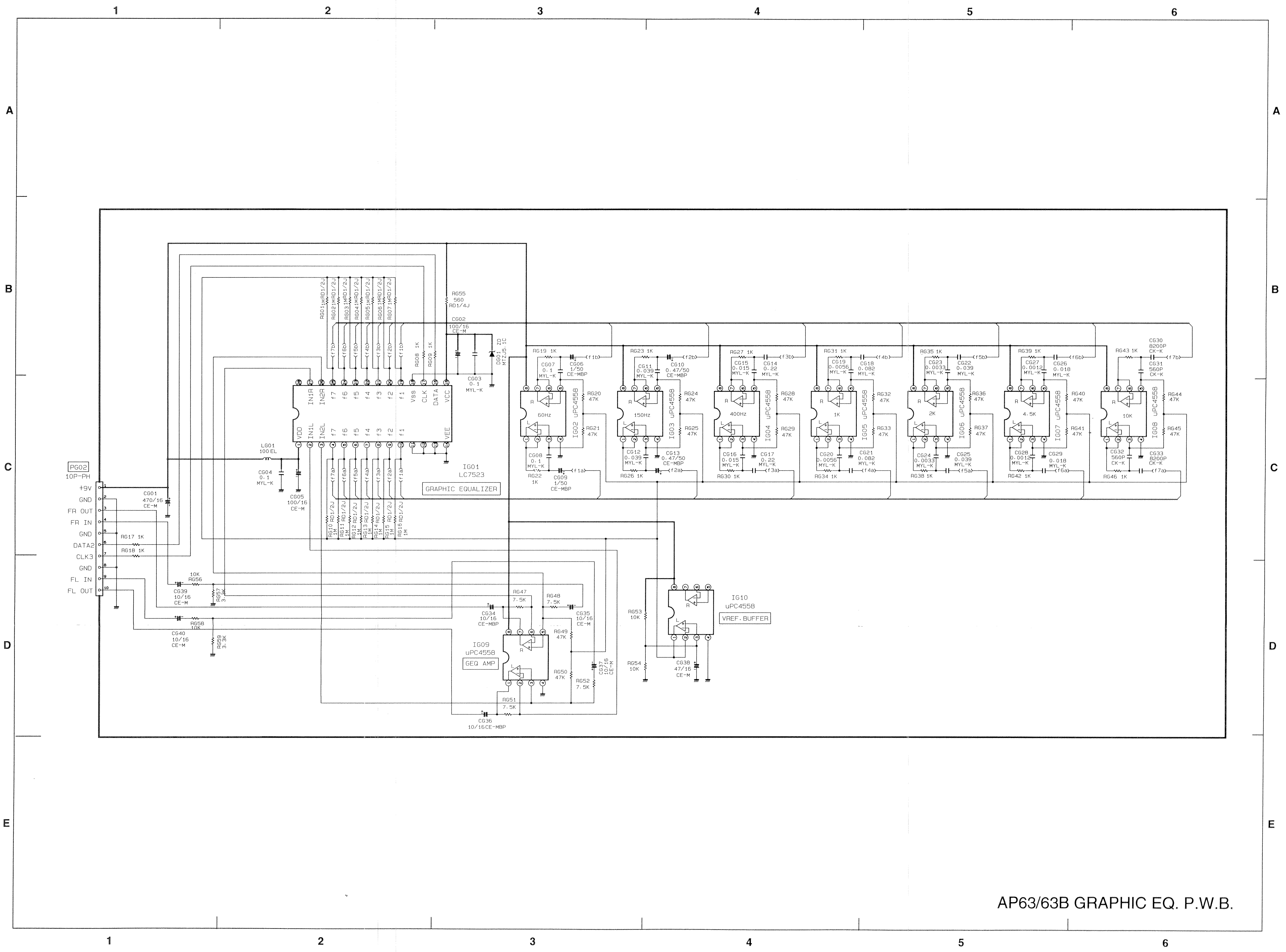
1
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A
B
C
D
E
PG02
10P-PH
+9V
GND
FR OUT
FR IN
GND
DATA2
CLK3
GND
FL IN
FL OUT
CG01 470/16 CE-M
RG17 1K
RG18 1K
LG01 100EL
CG04 0.1 MYL-K
CG05 100/16 CE-M
RG01~RG07 1M RD1/2J
RG10~RG16 RD1/2J 1M
RG55 560 RD1/4J
CG02 100/16 CE-M
CG03 0.1 MYL-K
RG08 1K
RG09 1K
DG01 ZD MTZJ5.1C
IG01
LC7523
GRAPHIC EQUALIZER
VDD
IN1L
IN2L
IN1R
IN2R
f7
f6
f5
f4
f3
f2
f1
Vss
CLK
DATA
VCC
VEE
IG02 uPC4558 60Hz
IG03 uPC4558 150Hz
IG04 uPC4558 400Hz
IG05 uPC4558 1K
IG06 uPC4558 2K
IG07 uPC4558 4.5K
IG08 uPC4558 10K
IG09
uPC4558
GEQ AMP
IG10
uPC4558
VREF. BUFFER
CG39 10/16 CE-M
RG56 10K
RG57 3.3K
CG40 10/16 CE-M
RG58 10K
RG59 3.3K
RG47 7.5K
RG48 7.5K
RG49 47K
RG50 47K
RG51 7.5K
RG52 7.5K
CG34 10/16 CE-MBP
CG35 10/16 CE-M
CG36 10/16CE-MBP
CG37 10/16 CE-M
RG53 10K
RG54 10K
CG38 47/16 CE-M
AP63/63B GRAPHIC EQ. P.W.B.

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

Circuit No.	Pin No.	Voltage VDC
IG01	1	8.9
	2	4.5
	3	4.4
	4	4.1
	5	4.1
	6	4.1
	7	4.1
	8	4.1
	9	4.1
	10	4.1
	11	0
	12	0
	13	0
	14	0
	15	5.2
	16	5.2
	17	0
	18	0
	19	4.1
	20	4.1
	21	4.1
	22	4.1
	23	4.1
	24	4.1
	25	4.1
	26	4.4
	27	4.5
	28	0

Circuit No.	Pin No.	Voltage VDC
IG02	1	4.5
	2	4.5
	3	4.4
	4	0
	5	4.4
	6	4.5
	7	4.5
	8	8.9

Circuit No.	Pin No.	Voltage VDC
IG03	1	4.5
	2	4.5
	3	4.4
	4	0
	5	4.4
	6	4.5
	7	4.5
	8	8.9

Circuit No.	Pin No.	Voltage VDC
IG04	1	4.5
	2	4.5
	3	4.4
	4	0
	5	4.4
	6	4.5
	7	4.5
	8	8.9

Circuit No.	Pin No.	Voltage VDC
IG05	1	4.5
	2	4.5
	3	4.4
	4	0
	5	4.4
	6	4.5
	7	4.5
	8	8.9

Circuit No.	Pin No.	Voltage VDC
IG06	1	4.5
	2	4.5
	3	4.5
	4	0
	5	4.4
	6	4.5
	7	4.5
	8	8.9

Circuit No.	Pin No.	Voltage VDC
IG07	1	4.5
	2	4.5
	3	4.4
	4	0
	5	4.4
	6	4.5
	7	4.5
	8	8.9

Circuit No.	Pin No.	Voltage VDC
IG08	1	4.5
	2	4.5
	3	4.4
	4	0
	5	4.4
	6	4.5
	7	4.5
	8	8.9

Circuit No.	Pin No.	Voltage VDC
IG09	1	4.5
	2	4.5
	3	4.4
	4	0
	5	4.4
	6	4.5
	7	4.5
	8	8.9

Circuit No.	Pin No.	Voltage VDC
IG10	1	4.5
	2	4.5
	3	4.5
	4	0
	5	1.0
	6	1.0
	7	8.4
	8	8.9

BASIC CIRCUIT DIAGRAM

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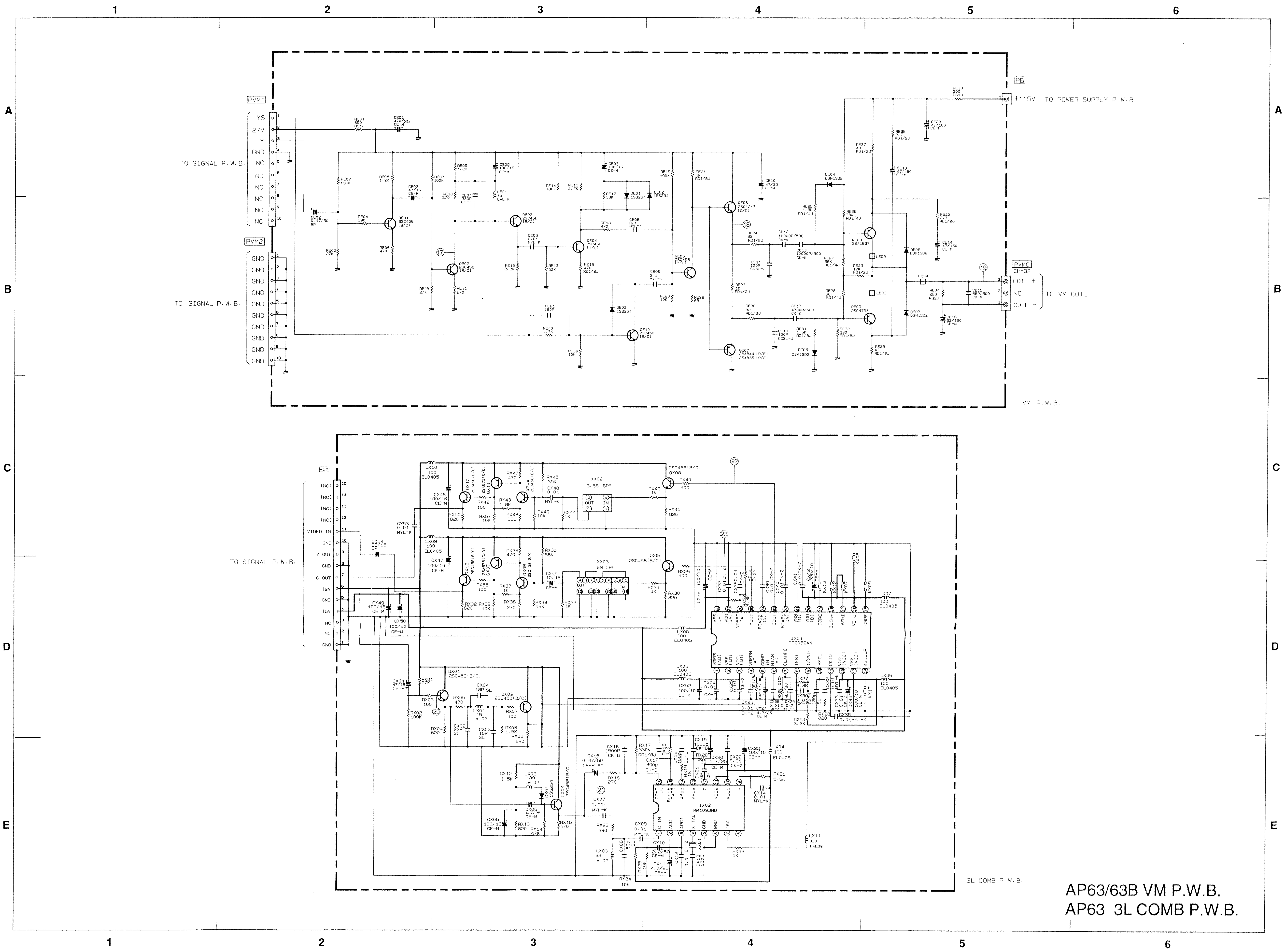
1
2
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A
B
C
D
E
PVM1
YS
27V
Y
GND
NC
TO SIGNAL P.W.B.
PVM2
GND
PB
+115V TO POWER SUPPLY P.W.B.
PVMC
EH-3P
COIL +
NC
COIL -
TO VM COIL
VM P.W.B.
QE01 2SC458 (B/C)
QE02 2SC458 (B/C)
QE03 2SC458 (B/C)
QE04 2SC458 (B/C)
QE05 2SC458 (B/C)
QE06 2SC1213 (C/D)
QE07 2SA844 (D/E) 2SA836 (D/E)
QE08 2SA1637
QE09 2SC4793
QE10 2SC458 (B/C)
PCX
VIDEO IN
Y OUT
C OUT
+9V
+5V
TO SIGNAL P.W.B.
XX02 3.58 BPF
XX03 6M LPF
IX01 TC9089AN
IX02 MM1093ND
QX08 2SC458 (B/C)
QX05 2SC458 (B/C)
QX01 2SC458 (B/C)
QX02 2SC458 (B/C)
QX04 2SC458 (B/C)
3L COMB P.W.B.

AP63/63B VM P.W.B.
AP63 3L COMB P.W.B.

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

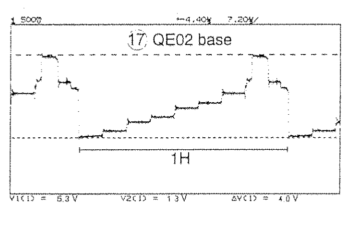
Circuit No.	Pin No.	Voltage VDC
IX01	1	1.5
	2	0
	3	5.2
	4	3.6
	5	2.3
	6	1.5
	7	3.5
	8	0
	9	2.6
	10	2.0
	11	2.2
	12	5.2
	13	0
	14	0
	15	0
	16	0
	17	5.1
	18	0
	19	0
	20	5.1
	21	0
	22	3.7
	23	4.4
	24	1.9
	25	4.2
	26	3.8
	27	5.1
	28	0

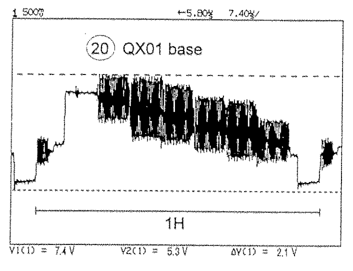
Circuit No.	Pin No.	Voltage VDC
IX02	1	3.6
	2	0.9
	3	2.5
	4	3.5
	5	0
	6	0
	7	2.4
	8	0
	9	3.6
	10	5.1
	11	5.1
	12	3.4
	13	2.2
	14	3.2
	15	0.8
	16	2.8

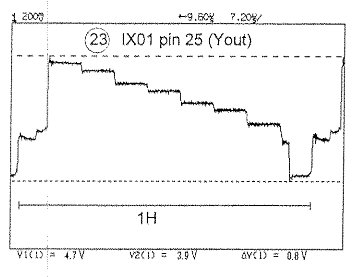
Circuit No.	Pin No.	Voltage VDC
QX01	B	6.1
	C	9.0
	E	5.4
QX02	B	4.1
	C	9.0
	E	3.4
QX04	B	3.5
	C	9.0
	E	2.8
QX05	B	4.3
	C	8.9
	E	3.6
QX06	B	2.1
	C	8.3
	E	1.4
QX07	B	8.3
	C	5.3
	E	8.9

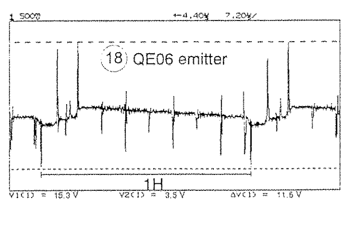
Circuit No.	Pin No.	Voltage VDC
QX08	B	4.4
	C	8.9
	E	3.8
QX09	B	1.8
	C	8.3
	E	1.1
QX10	B	5.0
	C	9.0
	E	4.3
QX11	B	8.3
	C	5.0
	E	8.9
QX12	B	5.3
	C	8.9
	E	4.6

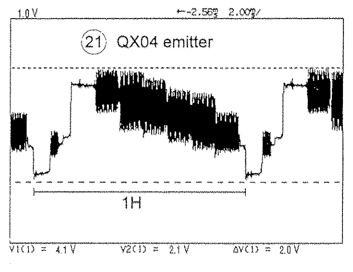
Circuit No.	Pin No.	Voltage VDC
QE01	B	2.8
	C	10.1
	E	2.1
QE02	B	2.6
	C	7.1
	E	1.9
QE03	B	7.1
	C	15.5
	E	6.4
QE04	B	2.6
	C	4.9
	E	1.9
QE05	B	1.1
	C	9.1
	E	0.4
QE06	B	9.1
	C	15.5
	E	9.1
QE07	B	9.1
	C	0
	E	9.1
QE08	B	112.4
	C	50.2
	E	112.5
QE09	B	0.2
	C	49.8
	E	0.2
QE10	B	0
	C	0.1
	E	0

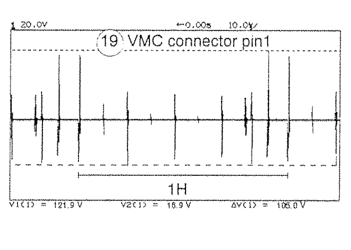


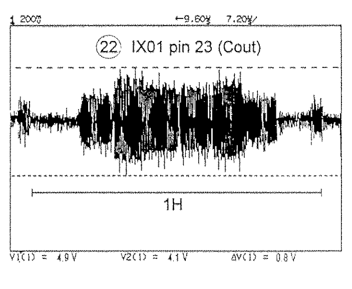












BASIC CIRCUIT DIAGRAM

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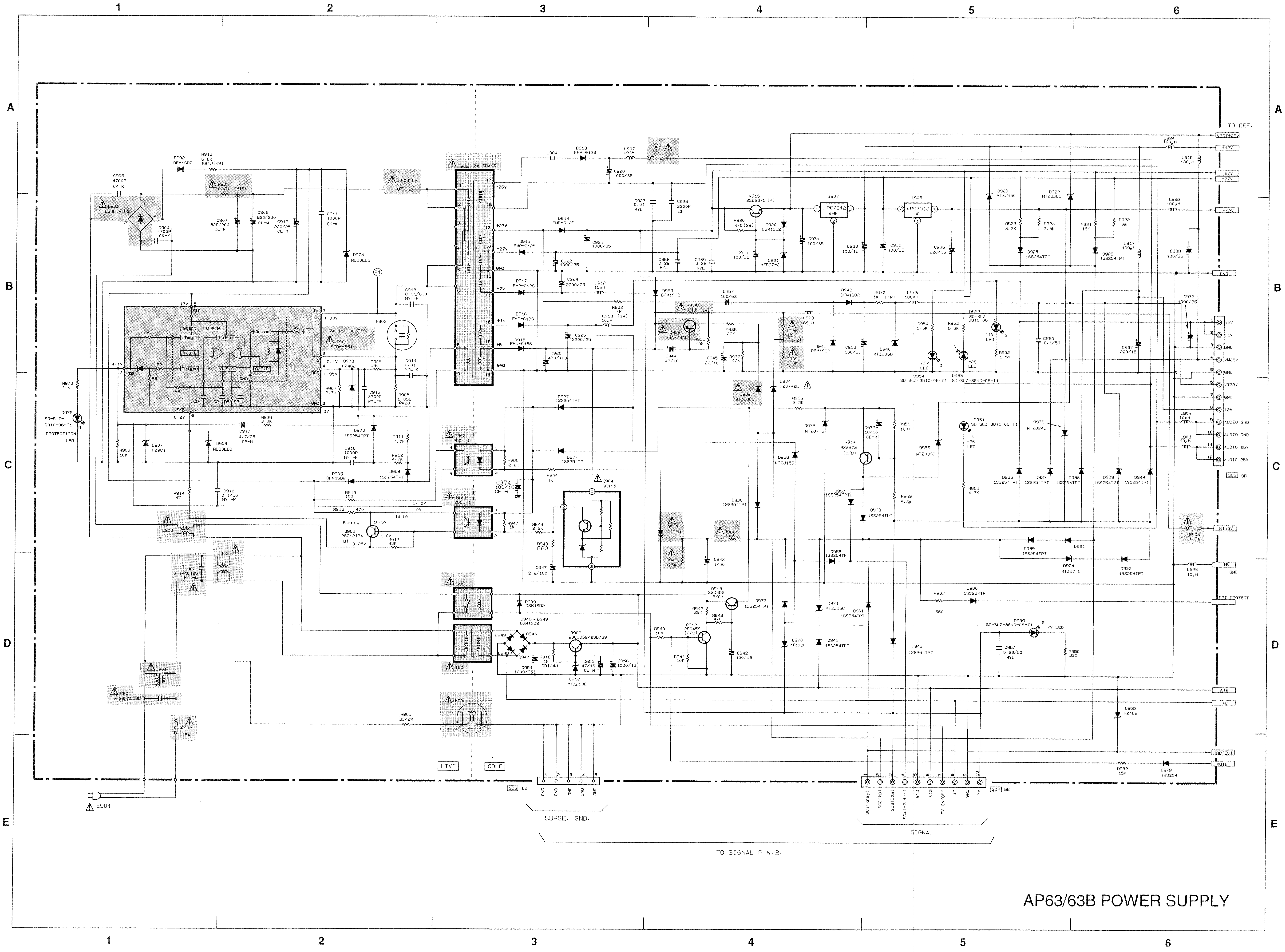
1
2
3
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A
B
C
D
E
I901 STR-M6511
Switching REG.
Start
O.V.P
Latch
Drive
Reg.
T.S.D
Trigger
O.S.C
O.C.P
Vin
F/B
OCP
GND
T902 SW TRANS
I902 2501-1
I903 2501-1
I904 SE115
S901
T901
H901
L901
L902
L903
D901 D3SB(A)60
F902 5A
F903 5A
F905 4A
F906 1.6A
E901
LIVE
COLD
I907 μPC7812 AHF
I906 μPC7912 HF
Q901 2SC1213A (D) BUFFER
Q902 2SC3852/2SD789
Q903 03P2M
Q909 2SA778AK
Q912 2SC458 (B/C)
Q913 2SC458 (B/C)
Q914 2SA673 (C/D)
Q915 2SD2375 (P)
TO DEF.
VERT+26V
+12V
+27V
-27V
-12V
GND
11V
VM26V
VT33V
12V
AUDIO GND
AUDIO 26V
B115V
+B
PRT PROTECT
A12
AC
PROTECT
MUTE
SD5 BB
SD4 BB
SURGE, GND.
SIGNAL
TO SIGNAL P.W.B.
SC1(Xray)
SC2(+B)
SC3(126)
SC4(7.111)
GND
A12
TV ON/OFF
AC
GND
7V
11V LED
26V LED
+26 LED
-26 LED
7V LED
PROTECTION LED
(24)

AP63/63B POWER SUPPLY

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

Circuit No.	Pin No.	Voltage VDC
I901	1	162.2
	2	0.1
	3	0
	4	1.4
	5	18.9
	6	0.2
	7	3.3

Circuit No.	Pin No.	Voltage VDC
I902	1	12.1
	2	12.1
	3	3.3
	4	18.9

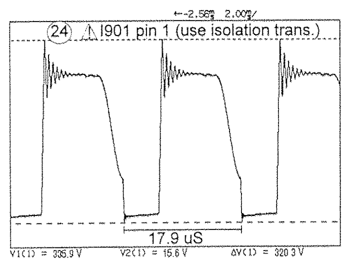
Circuit No.	Pin No.	Voltage VDC
I903	1	12.1
	2	11.2
	3	1.0
	4	18.5

Circuit No.	Pin No.	Voltage VDC
I904	1	114.9
	2	9.1
	3	0

Circuit No.	Pin No.	Voltage VDC
I906	1	0
	2	-26.7
	3	-12.2

Circuit No.	Pin No.	Voltage VDC
I907	1	25.6
	2	0
	3	11.9

Circuit No.	Pin No.	Voltage VDC
Q901	B	1.0
	C	18.5
	E	0.2
Q902	B	13.0
	C	18.5
	E	12.5
Q903	K	0
	A	12.1
	G	0.1
Q909	B	114.4
	C	0.2
	E	114.9
Q912	B	0.1
	C	12.3
	E	0
Q913	B	12.3
	C	12.5
	E	11.7
Q914	B	6.7
	C	0.3
	E	7.1
Q915	B	26.2
	C	27.1
	E	25.6



BASIC CIRCUIT DIAGRAM

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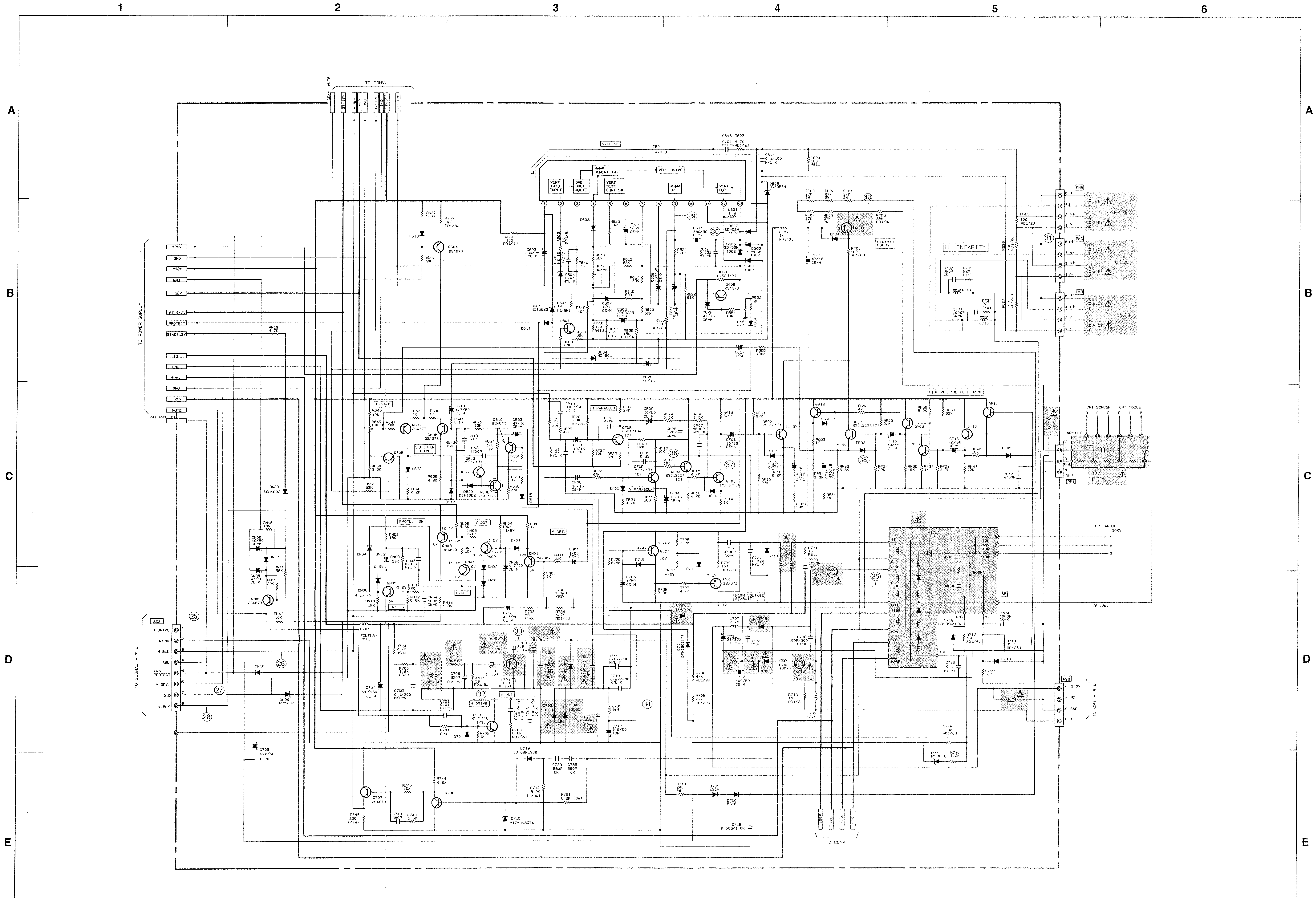

1
2
3
4
5
6
A
B
C
D
E
TO CONV.
TO POWER SUPPLY
TO SIGNAL P.W.B.
TO CPT P.W.B.
I601 LA7838
V.DRIVE
VERT TRIG INPUT
ONE SHOT MULTI
RAMP GENERATOR
VERT SIZE CONT SW
VERT DRIVE
PUMP UP
VERT OUT
H.LINEARITY
H.SIZE
SIDE-PIN DRIVE
H.PARABOLA
V.PARABOLA
DYNAMIC FOCUS
HIGH-VOLTAGE FEED BACK
PROTECT SW
V.DET.
H.DET.
H.OUT
HIGH-VOLTAGE STABILITY
FILTER-COIL
T702 FBT
CPT SCREEN
CPT FOCUS
CPT ANODE 30KV
EF 12KV
HFD1 EFPK
E12B
E12G
E12R
H.DY
V.DY
SD3
H.DRIVE
H.GND
H.BLK
ABL
H.V PROTECT
V.DRV
GND
V.BLK
PRT PROTECT
+26V
GND
+12V
-12V
ST +12V
PROTECT
STAC+12V
-26V
MUTE
240V
NC
H

MC-Service

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

AP63/63B CHASSIS DEFLECTION

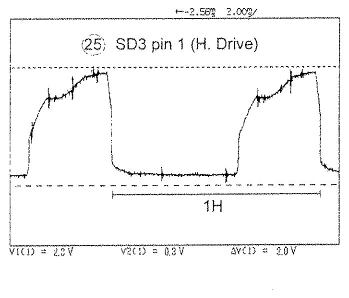
Circuit No.	Pin No.	Voltage VDC
I601	1	11.1
	2	4.4
	3	5.5
	4	5.6
	5	0
	6	5.1
	7	5.6
	8	25.3
	9	1.6
	10	1.4
	11	0
	12	13.0
	13	25.1

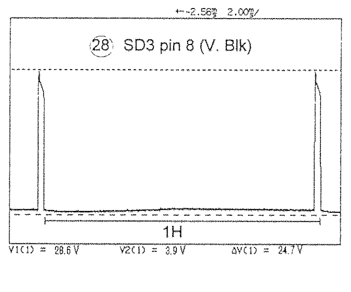
Circuit No.	Pin No.	Voltage VDC
Q601	B	0
	C	4.7
	E	0
Q604	B	10.4
	C	6.4
	E	11.0
Q605	B	5.1
	C	1.7
	E	5.6
Q606	B	0.5
	C	15.6
	E	0
Q607	B	5.7
	C	0.9
	E	6.2
Q608	B	0
	C	2.4
	E	0
Q609	B	0.7
	C	0
	E	25.6
Q610	B	15.6
	C	0
	E	15.8
Q612	B	4.3
	C	11.8
	E	3.7
Q613	B	0.9
	C	15.6
	E	0.5

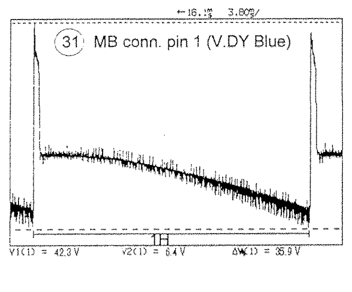
Circuit No.	Pin No.	Voltage VDC
Q701	B	0.2
	C	37.3
	E	0
Q704	B	3.8
	C	11.8
	E	3.3
Q705	B	6.0
	C	2.3
	E	6.7
Q706	B	-0.5
	C	9.6
	E	0
Q707	B	12.8
	C	2.3
	E	11.8
Q777	B	-0.1
	C	112.9
	E	0

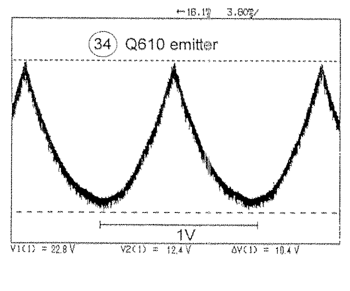
Circuit No.	Pin No.	Voltage VDC
QF01	B	11.8
	C	598.0
	E	11.3
QF02	B	6.0
	C	11.0
	E	5.8
QF03	B	2.7
	C	4.3
	E	2.1
QF04	B	3.4
	C	11.8
	E	2.9
QF05	B	1.1
	C	3.4
	E	0.5
QF06	B	-11.2
	C	-5.2
	E	-11.6
QF07	B	5.8
	C	11.0
	E	5.3
QF08	B	5.1
	C	11.8
	E	4.5
QF09	B	1.5
	C	5.1
	E	0.9
QF10	B	10.2
	C	11.8
	E	9.5
QF11	B	10.5
	C	11.8
	E	10.2

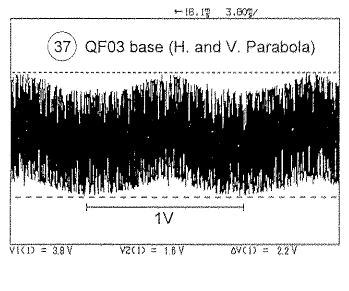
Circuit No.	Pin No.	Voltage VDC
QN01	B	0
	C	11.6
	E	0
QN02	B	0.9
	C	12.5
	E	0.5
QN03	B	12.5
	C	0
	E	12.5
QN04	B	0
	C	12.5
	E	0
QN05	B	-0.2
	C	0.6
	E	0
QN06	B	10.3
	C	0
	E	10.3

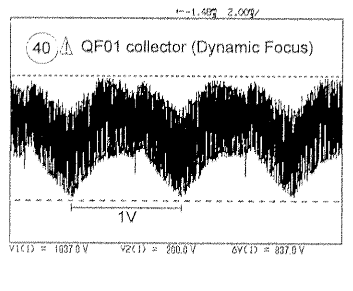

(25) SD3 pin 1 (H. Drive)

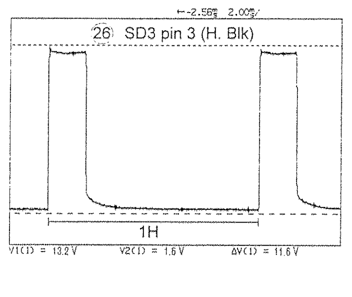

(28) SD3 pin 8 (V. Blk)

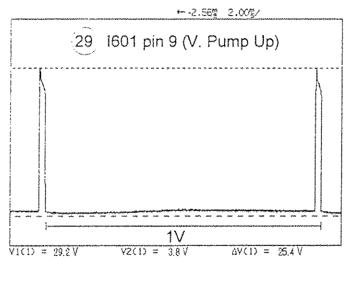

(31) MB conn. pin 1 (V.DY Blue)

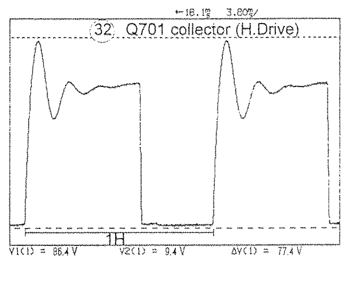

(34) Q610 emitter

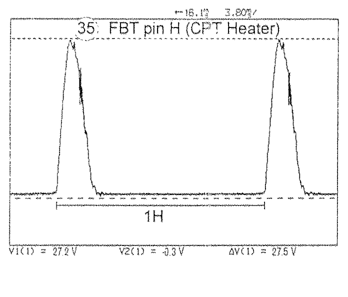

(37) QF03 base (H. and V. Parabola)

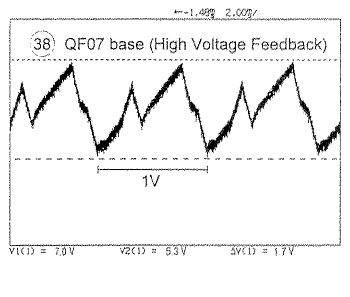

(40) ⚠ QF01 collector (Dynamic Focus)

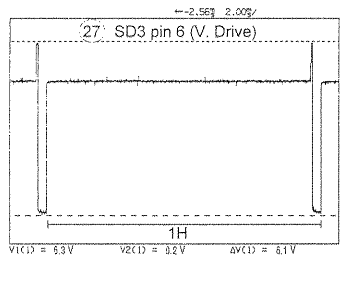

(26) SD3 pin 3 (H. Blk)

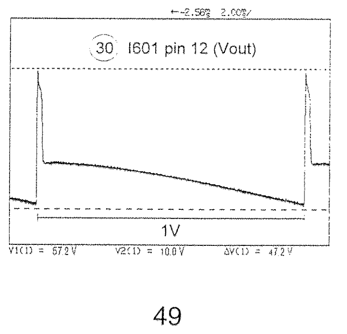

(29) I601 pin 9 (V. Pump Up)

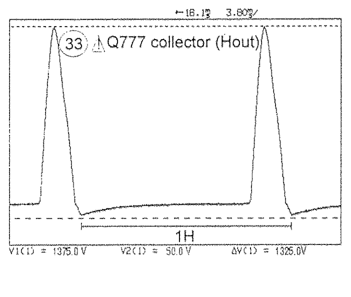

(32) Q701 collector (H.Drive)

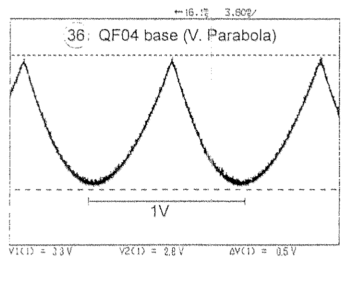

(35) FBT pin H (CPT Heater)

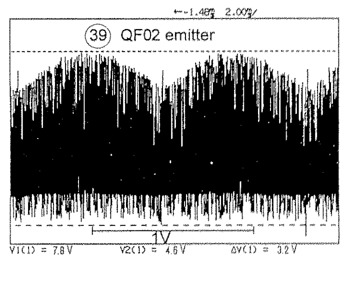

(38) QF07 base (High Voltage Feedback)


(27) SD3 pin 6 (V. Drive)


(30) I601 pin 12 (Vout)

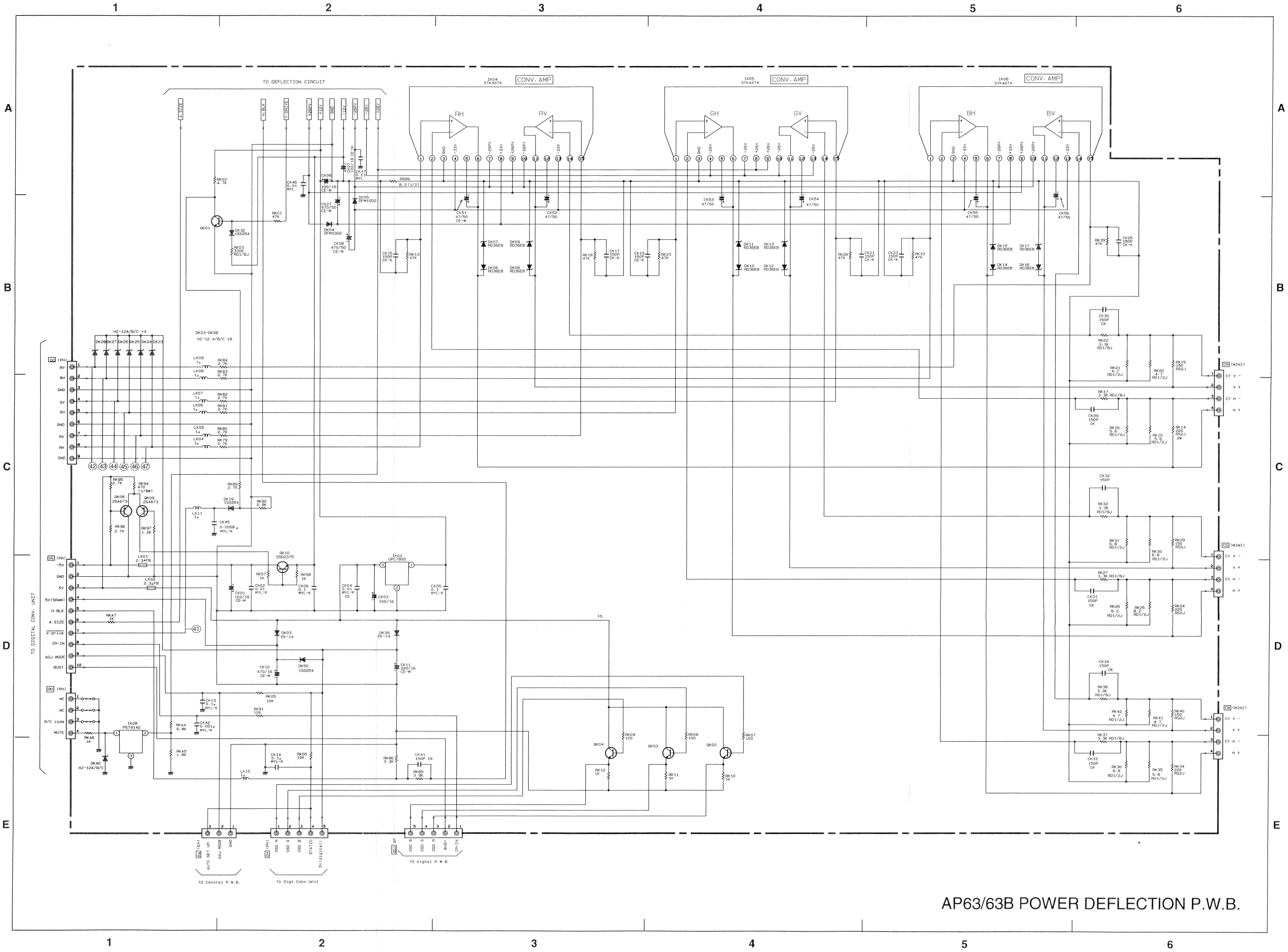

(33) Q777 collector (Hout)


(36) QF04 base (V. Parabola)


(39) QF02 emitter

BASIC CIRCUIT DIAGRAM

PRODUCT SAFETY NOTE: Components marked with a ⚠ and shaded have special characteristics important to safety. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.


1
2
3
4
5
6
A
B
C
D
E
TO DEFLECTION CIRCUIT
IK04 STK4274 CONV. AMP
IK05 STK4274 CONV. AMP
IK06 STK4274 CONV. AMP
RH
RV
GH
GV
BH
BV
HZ-12A/B/C x6
DK23-DK28
HZ-12 A/B/C x6
TO DIGITAL CONV. UNIT
BV
BH
GND
GV
GH
GND
RV
RH
GND
-5V
GND
5V
5V(SRAM)
H.BLK
A.SIZE
V.drive
IR-IN
ADJ.MODE
BUSY
NC
NC
R/C code
MUTE
IK02 UPC7805
IK08 PST9142
QK01
QK02
QK03
QK04
QK08 2SA673
QK09 2SA673
QK10 2SD2375
CY V -
V +
CY H -
H +
AUTO SET UP
ADJ.MODE
GND
TO Control P.W.B.
OSD R
OSD G
OSD B
STATIC
5V(digital)
TO Digt.Conv.Unit
OSD B
OSD G
OSD R
BUSY
IR-IN
TO signal P.W.B.

AP63/63B POWER DEFLECTION P.W.B.

- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

Circuit No.	Pin No.	Voltage VDC
IK02	1	11.8
	2	0
	3	4.9

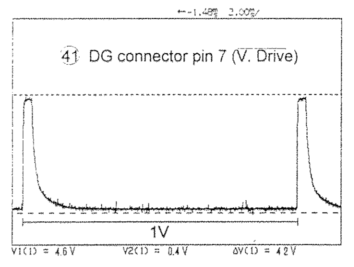
Circuit No.	Pin No.	Voltage VDC
IK04	1	0.2
	2	0.2
	3	0
	4	-32.9
	5	-22.2
	6	-0.3
	7	-26.5
	8	33.3
	9	27.0
	10	-26.5
	11	-0.4
	12	-22.5
	13	-32.9
	14	-0.3
	15	-0.3

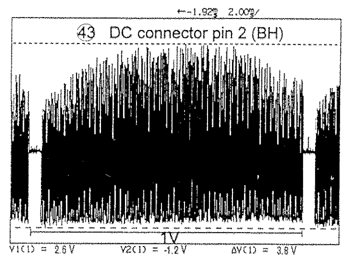
Circuit No.	Pin No.	Voltage VDC
IK05	1	0.3
	2	0.3
	3	0
	4	-26.5
	5	-17.8
	6	0.4
	7	-26.5
	8	27.0
	9	27.0
	10	-26.5
	11	-0.5
	12	-18.3
	13	-26.5
	14	-0.4
	15	-0.4

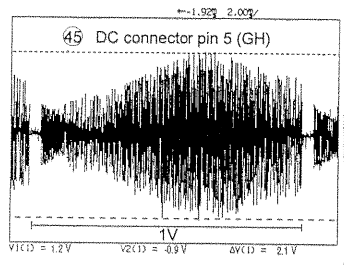
Circuit No.	Pin No.	Voltage VDC
IK06	1	-0.4
	2	-0.4
	3	0
	4	-32.9
	5	-22.5
	6	-0.4
	7	-26.5
	8	33.3
	9	27.0
	10	-26.5
	11	-0.4
	12	-22.5
	13	-32.9
	14	-0.3
	15	-0.3

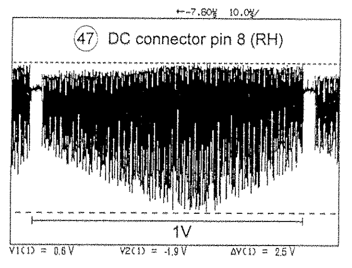
Circuit No.	Pin No.	Voltage VDC
IK08	1	3.4
	2	5.7
	3	0

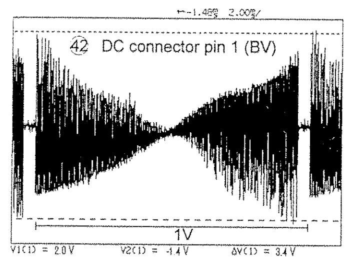
Circuit No.	Pin No.	Voltage VDC
QK01	B	0.6
	C	0.3
	E	0
QK02	B	0
	C	4.9
	E	0
QK03	B	0
	C	4.9
	E	0
QK04	B	0
	C	4.9
	E	0
QK08	B	-0.1
	C	0
	E	0.5
QK09	B	0
	C	-11.1
	E	0.5
QK10	B	-11.6
	C	-5.3
	E	-12.2

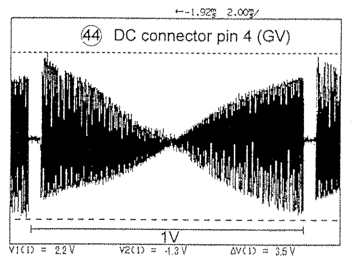


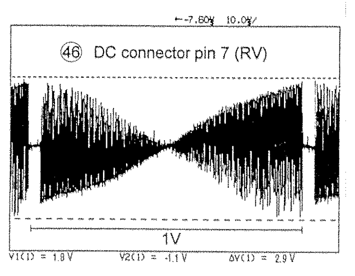












BASIC CIRCUIT DIAGRAM

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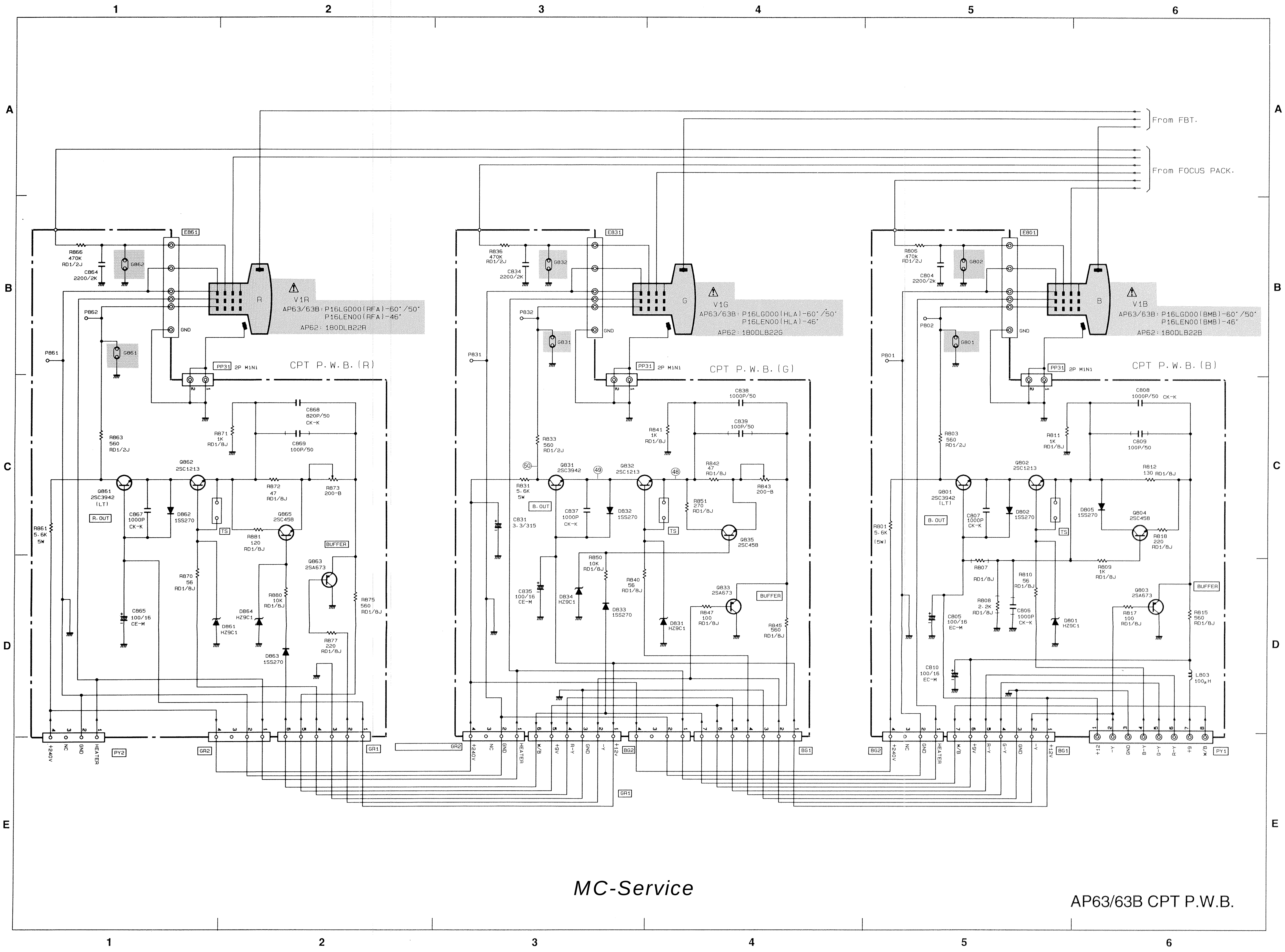
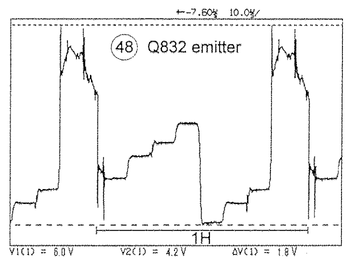

From FBT.
From FOCUS PACK.
V1R
AP63/63B: P16LGD00(RFA)-60°/50°
P16LEN00(RFA)-46°
AP62: 180DLB22R
V1G
AP63/63B: P16LGD00(HLA)-60°/50°
P16LEN00(HLA)-46°
AP62: 180DLB22G
V1B
AP63/63B: P16LGD00(BMB)-60°/50°
P16LEN00(BMB)-46°
AP62: 180DLB22B
CPT P.W.B. (R)
CPT P.W.B. (G)
CPT P.W.B. (B)
E861
E831
E801
PP31 2P M1N1
GND
R-OUT
G-OUT
B-OUT
TS
BUFFER
Q861 2SC3942 (LT)
Q862 2SC1213
Q863 2SA673
Q865 2SC458
Q831 2SC3942
Q832 2SC1213
Q833 2SA673
Q835 2SC458
Q801 2SC3942 (LT)
Q802 2SC1213
Q803 2SA673
Q804 2SC458
PY2
GR2
GR1
BG2
BG1
PY1
+240V
NC
GND
HEATER
W/B
+9V
R-Y
G-Y
B-Y
-Y
+12V
1
2
3
4
5
6
A
B
C
D
E

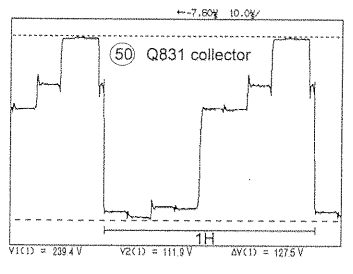
AP63/63B CPT P.W.B.

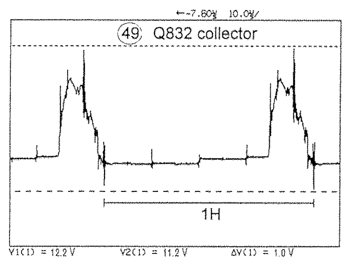
- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

Circuit No.	Pin No.	Voltage VDC
Q801	B	11.8
	C	172.8
	E	11.2
Q802	B	5.3
	C	11.2
	E	4.9
Q803	B	4.1
	C	0
	E	4.2
Q804	B	4.8
	C	4.5
	E	4.6
Q831	B	11.8
	C	175.8
	E	11.3
Q832	B	5.2
	C	11.2
	E	4.8

Circuit No.	Pin No.	Voltage VDC
Q833	B	4.1
	C	0
	E	4.2
Q835	B	1.9
	C	4.8
	E	4.5
Q861	B	11.8
	C	191.2
	E	11.2
Q862	B	5.1
	C	11.2
	E	4.7
Q863	B	4.1
	C	0
	E	4.2
Q865	B	2.3
	C	4.7
	E	4.5







BASIC CIRCUIT DIAGRAM

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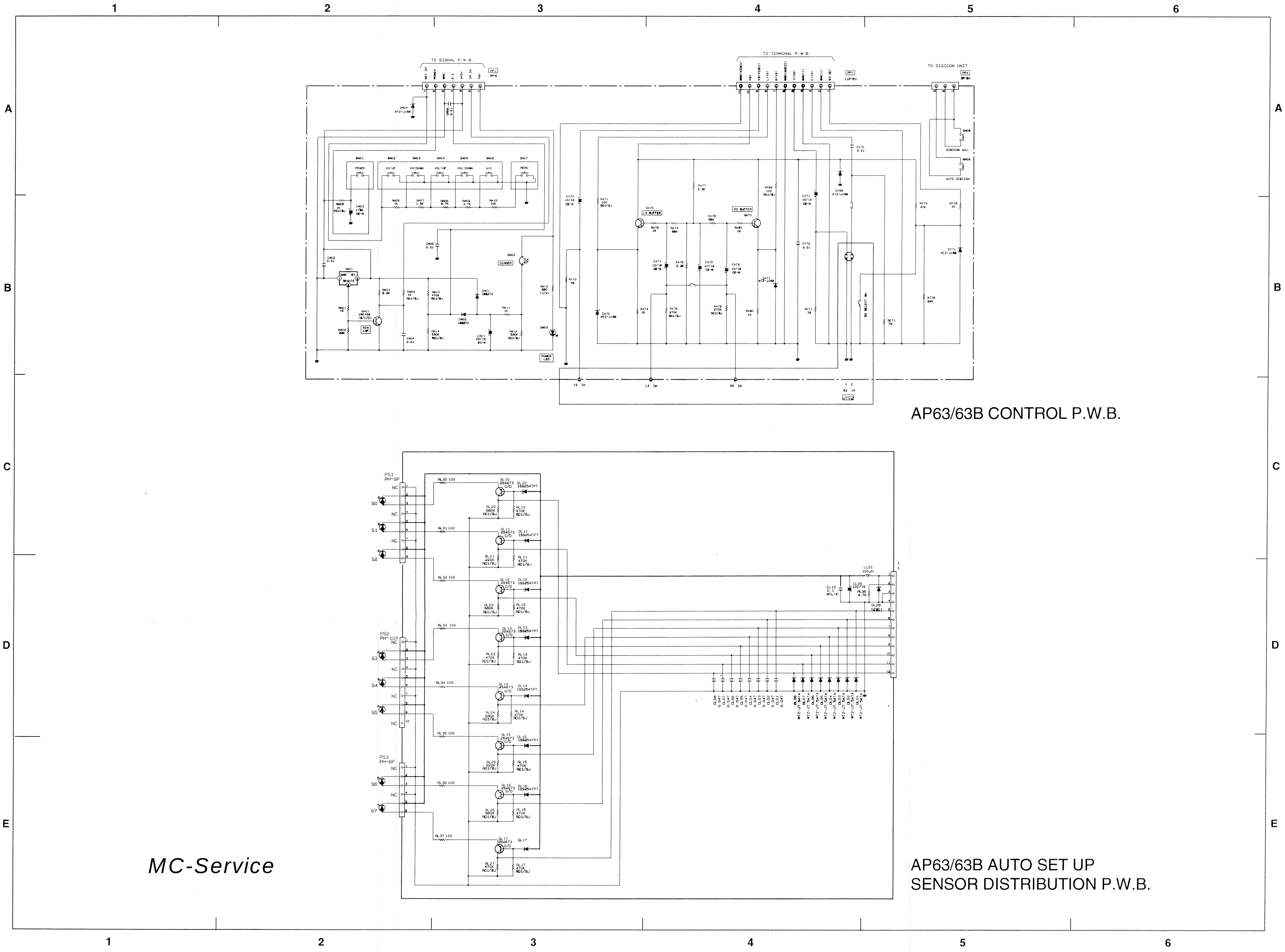

1
2
3
4
5
6
A
B
C
D
E
TO SIGNAL P.W.B.
TO TERMINAL P.W.B.
TO DIGICON UNIT
POWER
CH-UP
CH-DOWN
VOL-UP
VOL-DOWN
AV4
MENU
L3 BUFFER
R3 BUFFER
DIGICON ADJ.
AUTO DIGICON
REMOTE
POWER LED
V3 IN
L3 IN
R3 IN
PS1 PH-9P
PS2 PH-10P
PS3 PH-6P
NC
S0
S1
S2
S3
S4
S5
S6
S7
AP63/63B CONTROL P.W.B.
AP63/63B AUTO SET UP SENSOR DISTRIBUTION P.W.B.

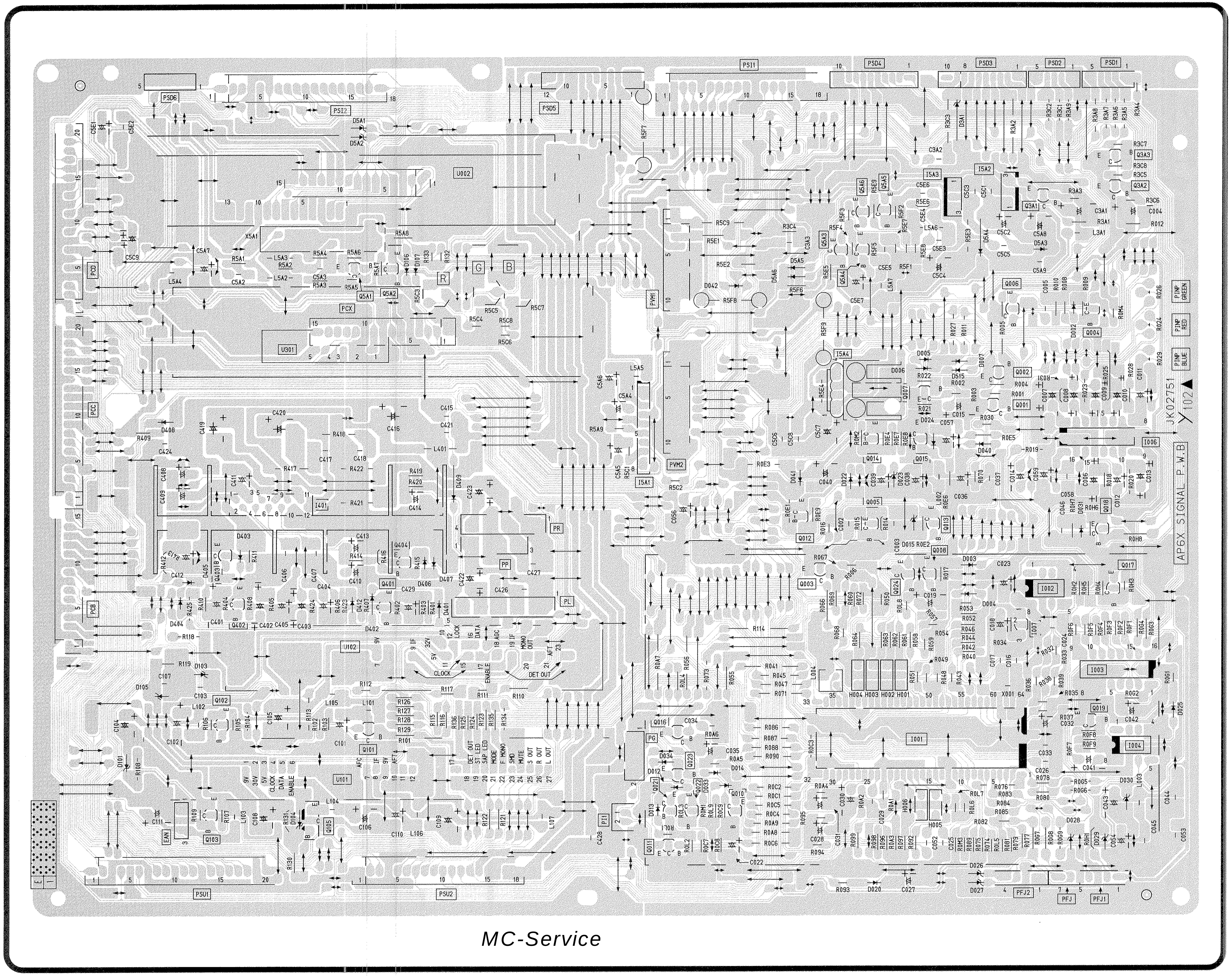
- All DC voltage to be measured with a tester (100kΩ/V). Voltage taken on a complex color bar signal including a standard color bar signal.
- Since this is a basic circuit diagram, the value of the parts is subject to be altered for improvement.

Circuit No.	Pin No.	Voltage VDC
QL10	B	4.3
	C	0
	E	1.5
QL11	B	4.3
	C	0.1
	E	4.6
QL12	B	4.3
	C	0.9
	E	4.5
QL13	B	4.3
	C	0.7
	E	4.6
QL14	B	4.3
	C	0.1
	E	2.0
QL15	B	4.3
	C	2.3
	E	4.8
QL16	B	4.3
	C	0.1
	E	3.0
QL17	B	4.3
	C	0.5
	E	4.6

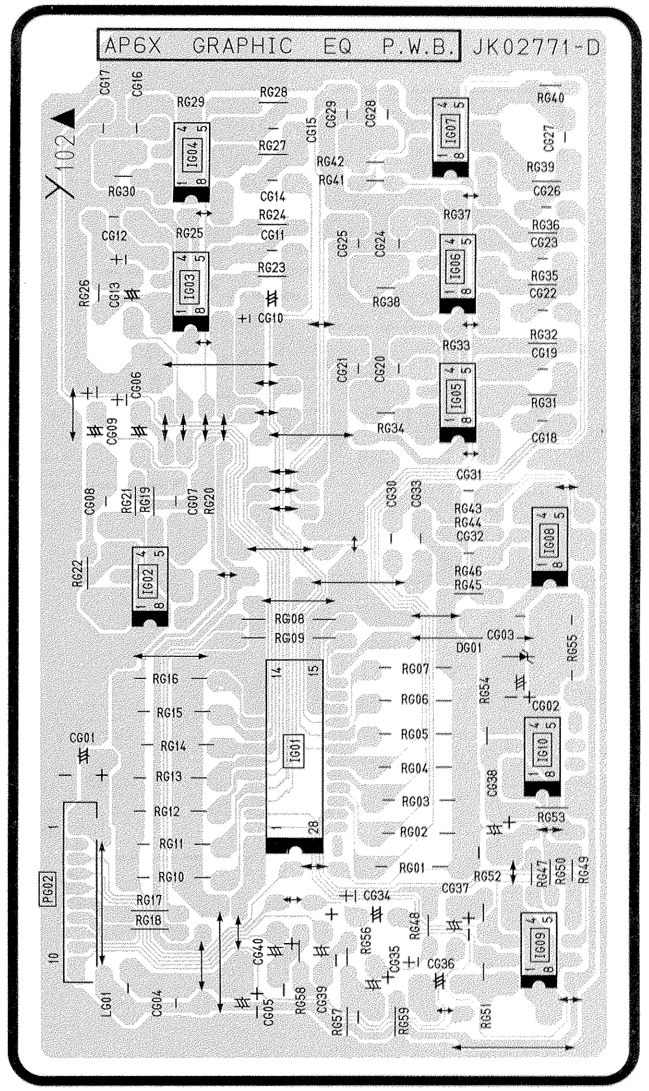
Circuit No.	Pin No.	Voltage VDC
QM01	B	0.7
	C	0.1
	E	0
QM02	B	---
	C	1.6
	E	9.1
QA70	B	2.9
	C	9.0
	E	2.3
QA71	B	3.0
	C	9.0
	E	2.3

PRINTED CIRCUIT BOARD

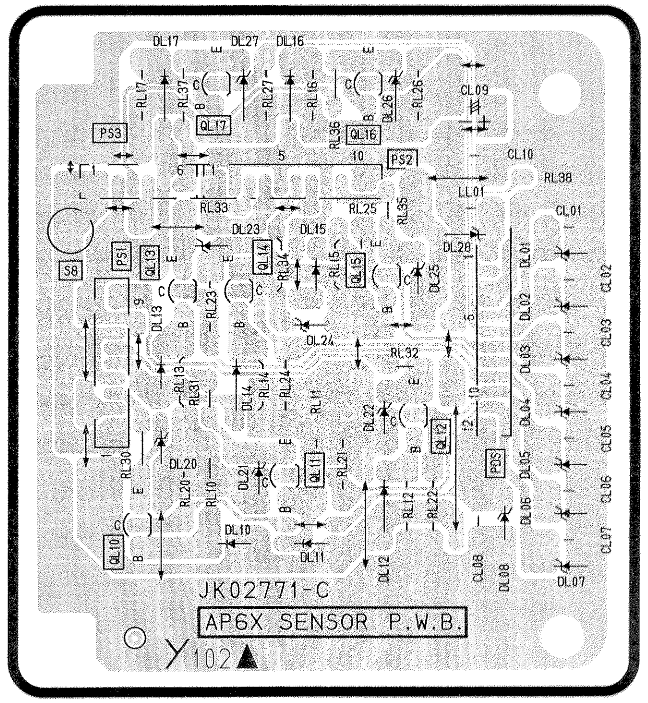
SIGNAL P.C.B.


AP6X SIGNAL P.W.B.
JK02751
Y102

GRAPHIC EQ. P.C.B.

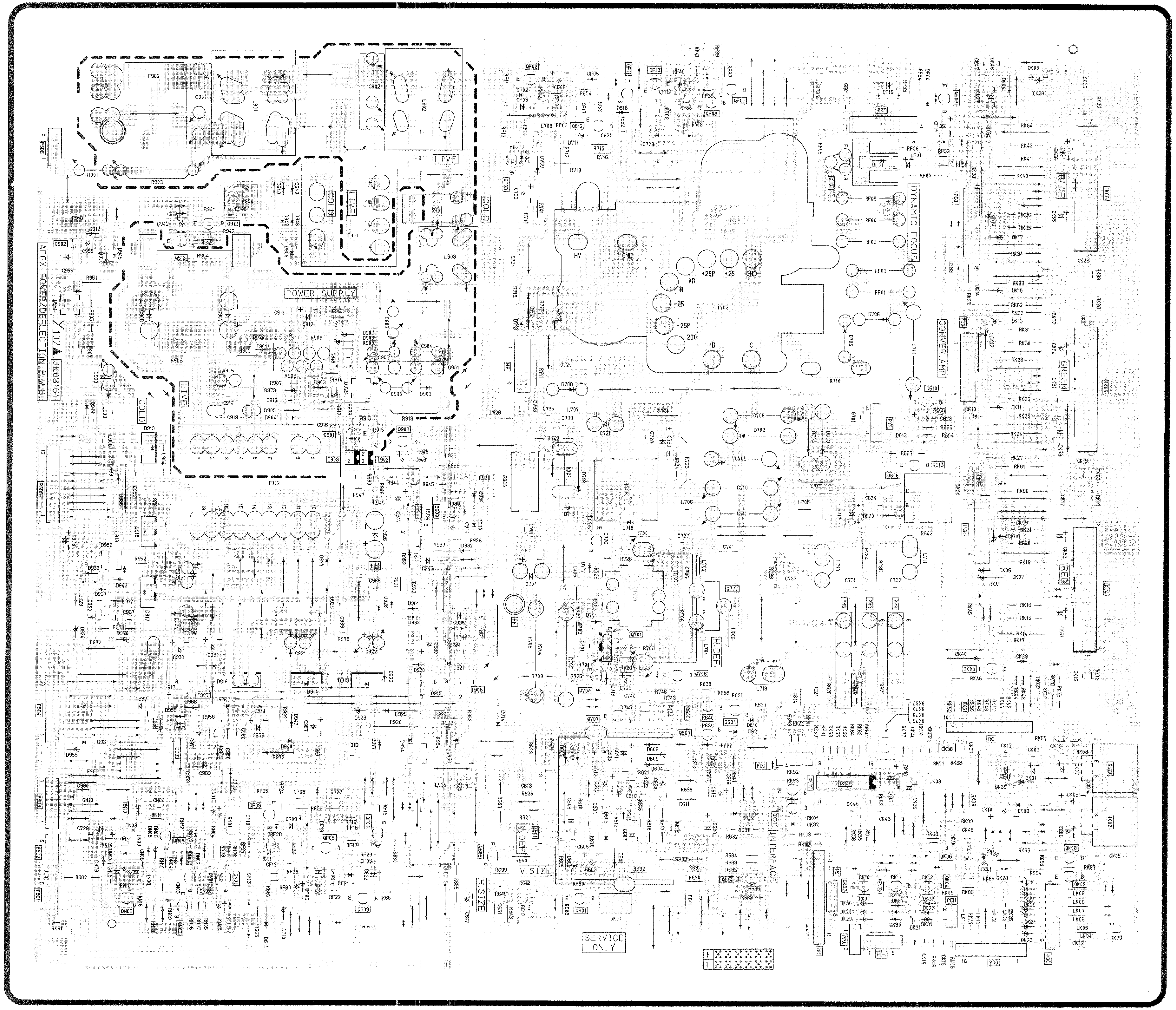

AP6X GRAPHIC EQ P.W.B.
JK02771-D
Y102

SENSOR DISTRIBUTION P.C.B.

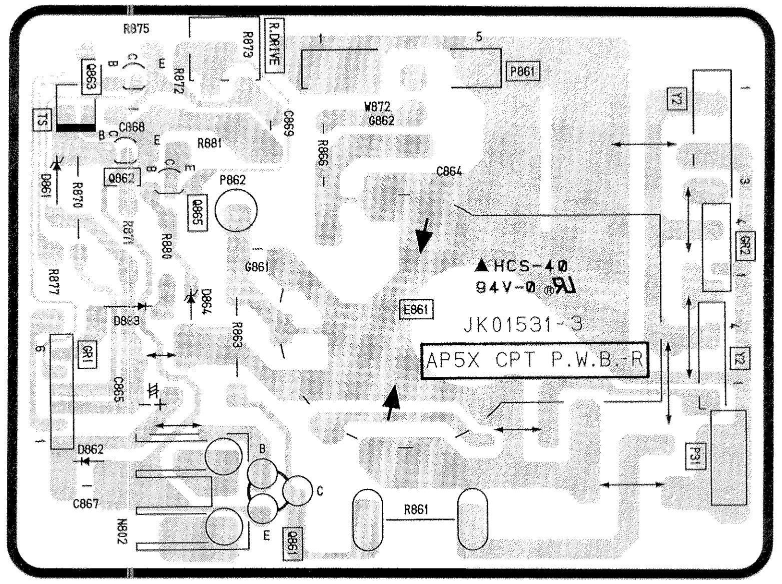

JK02771-C
AP6X SENSOR P.W.B.
Y102

PRINTED CIRCUIT BOARD

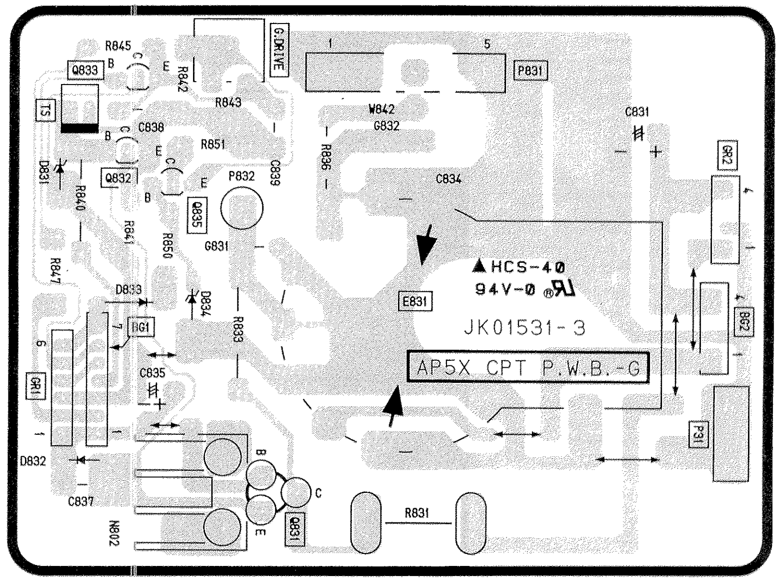
POWER/DEFLECTION P.C.B.


AP6X POWER/DEFLECTION P.W.B.
102▲JK03161
LIVE
COLD
POWER SUPPLY
DYNAMIC FOCUS
CONVER.AMP
BLUE
GREEN
RED
HV
GND
ABL
+25P
+25
-25
-25P
200
+B
T702
H.DEF
V.DEF
V.SIZE
H.SIZE
INTERFACE
SERVICE ONLY

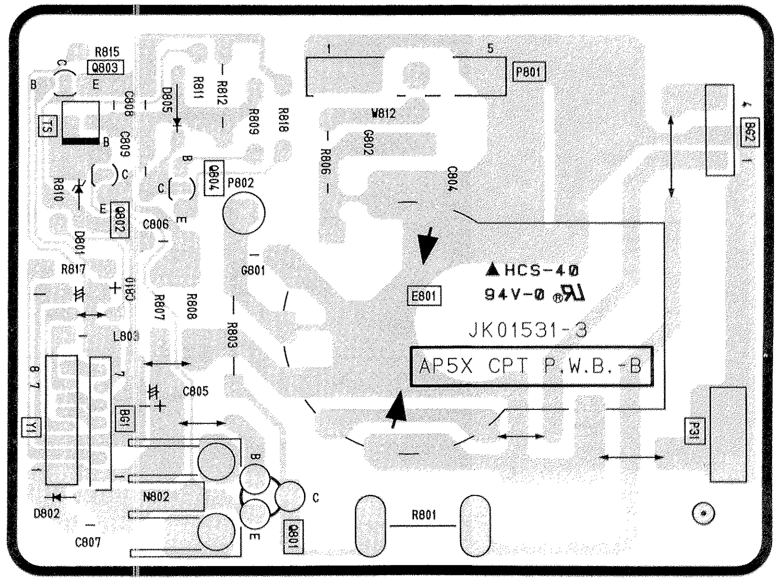
RED CPT P.C.B.


R.DRIVE
P861
▲HCS-40
94V-0
JK01531-3
AP5X CPT P.W.B.-R

GREEN CPT P.C.B.

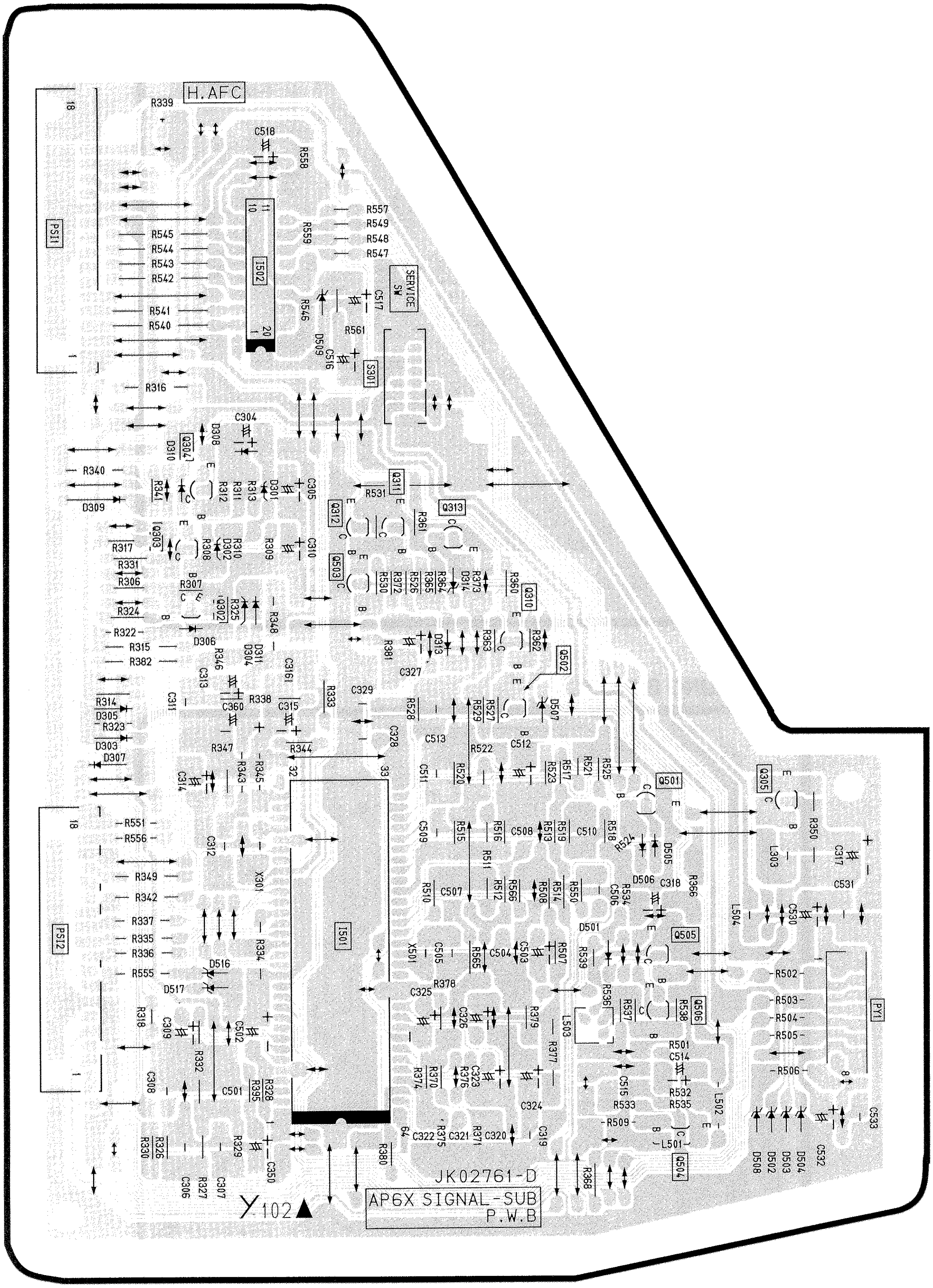

G.DRIVE
P831
▲HCS-40
94V-0
JK01531-3
AP5X CPT P.W.B.-G

BLUE CPT P.C.B.


P801
▲HCS-40
94V-0
JK01531-3
AP5X CPT P.W.B.-B

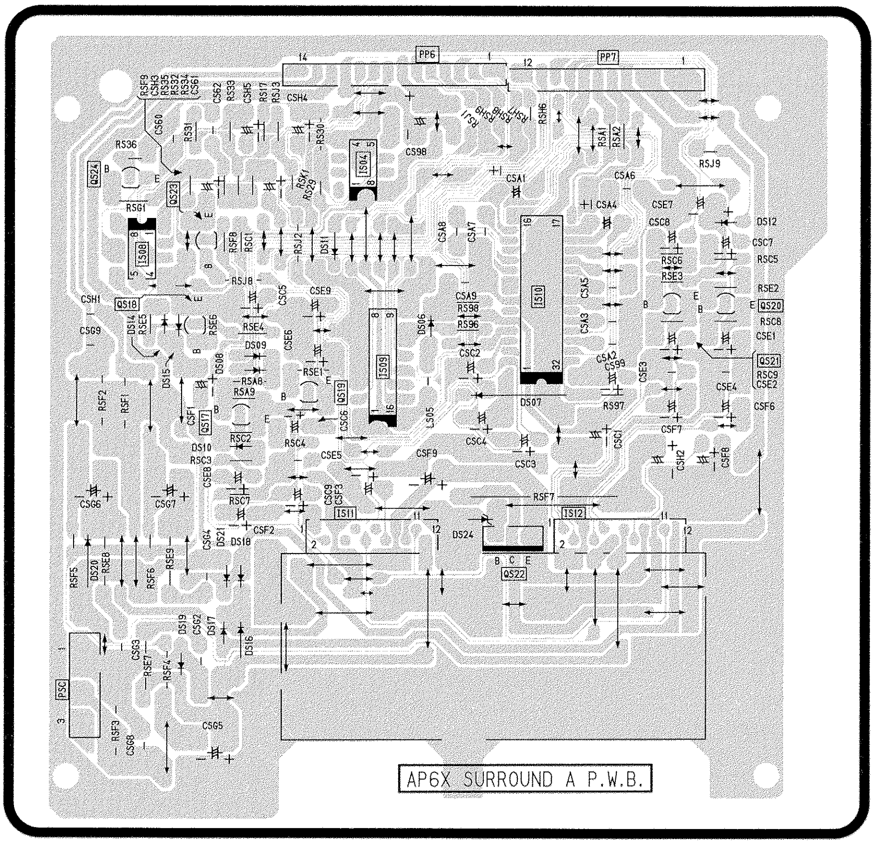
PRINTED CIRCUIT BOARD

SIGNAL SUB P.C.B.

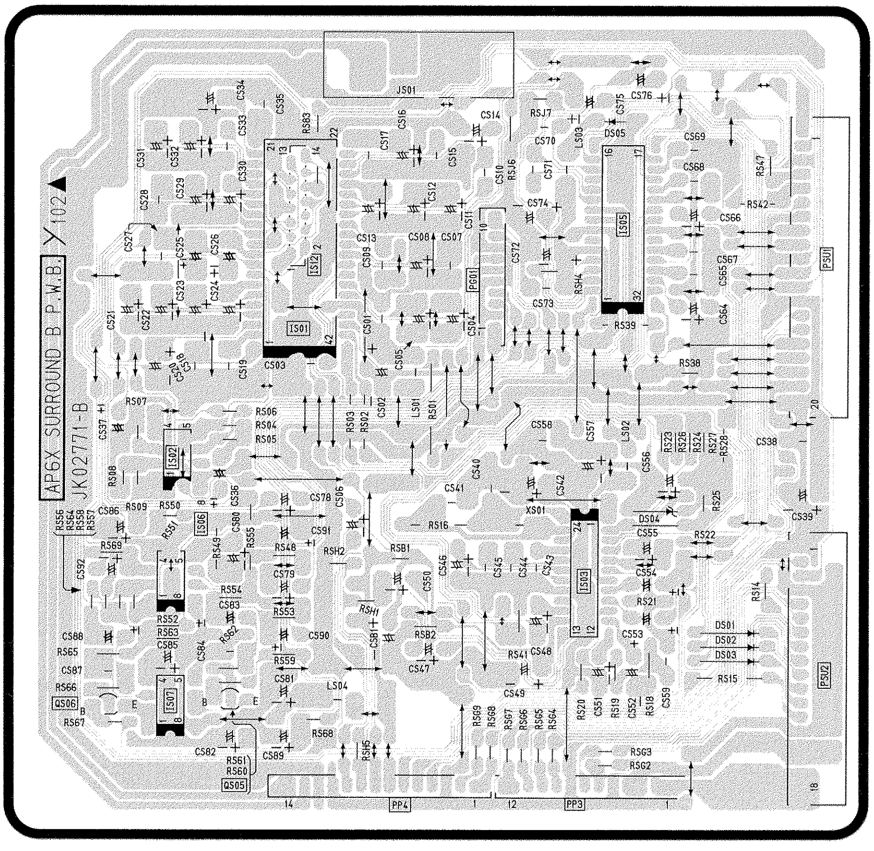

H.AFC
PSI1
PSI2
I502
I501
SERVICE SW
S301
Q301
Q302
Q303
Q304
Q305
Q310
Q311
Q312
Q313
Q501
Q502
Q503
Q504
Q505
Q506
PY1
X301
X501
L303
L501
L502
L503
L504
JK02761-D
AP6X SIGNAL-SUB
P.W.B
Y102

PRINTED CIRCUIT BOARD

SURROUND A P.C.B.

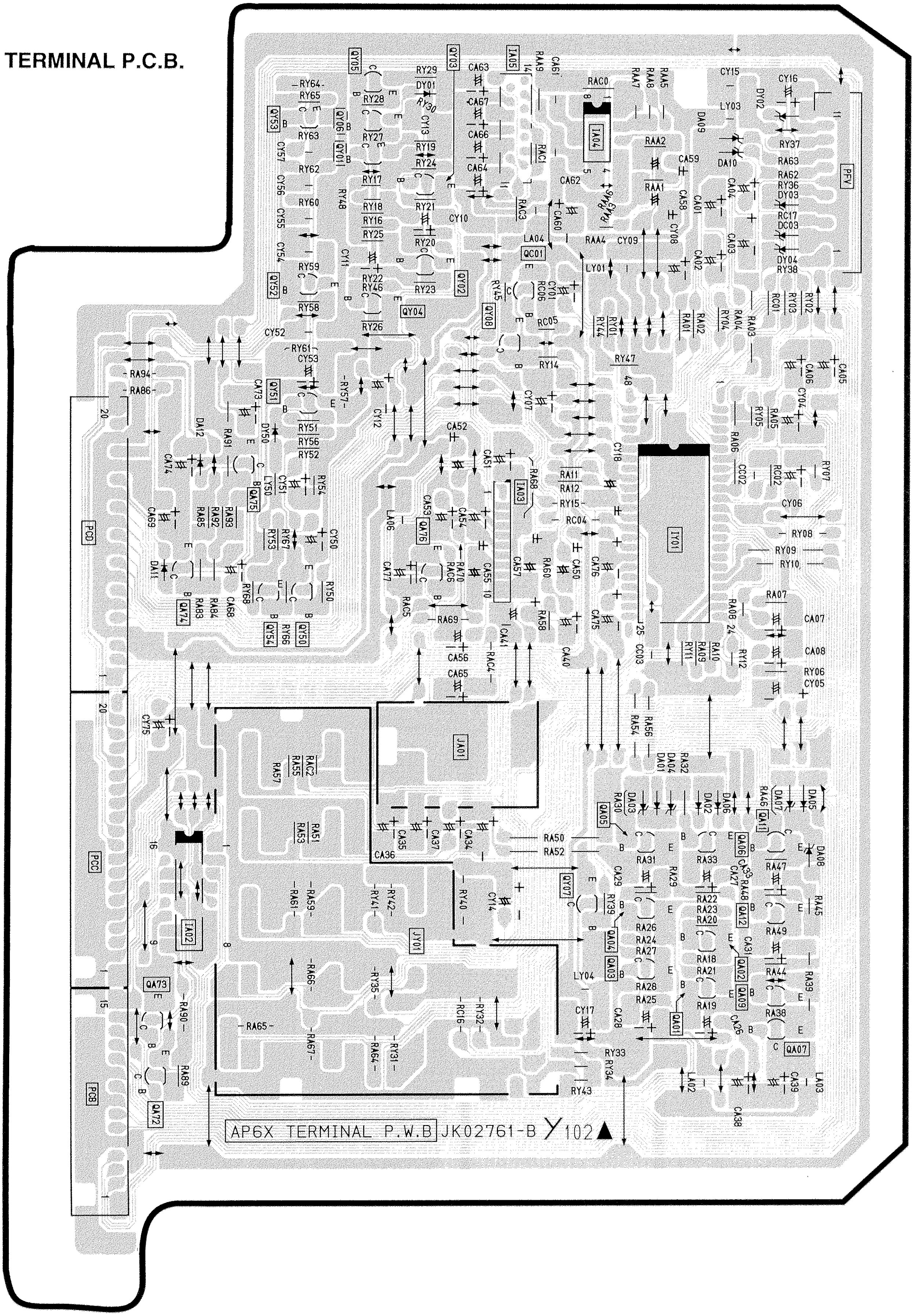

AP6X SURROUND A P.W.B.
PP6
PP7
PSC
I504
I508
I509
I510
I511
I512
Q517
Q518
Q519
Q520
Q521
Q522
Q523
Q524
DS07
DS24
RSF7

SURROUND B P.C.B.


AP6X SURROUND B P.W.B.
JK02771-B
Y102
JS01
I501
I502
I503
I505
I506
I507
I512
Q505
Q506
PG01
PSU1
PSU2
PP4
PP3
XS01
LS01
LS02
LS03
LS04

PRINTED CIRCUIT BOARD

TERMINAL P.C.B.


AP6X TERMINAL P.W.B JK02761-B Y102▲
IY01
IA01
IA02
IA03
IA04
IA05
JA01
JY01
PCD
PCC
PCB
PFV
QY01
QY02
QY03
QY04
QY05
QY06
QY07
QY08
QY50
QY51
QY52
QY53
QY54
QA01
QA02
QA03
QA04
QA05
QA06
QA07
QA09
QA11
QA12
QA72
QA73
QA74
QA75
QA76
QC01
LY01
LY03
LY04
LY50
LA02
LA03
LA04
LA06
DY01
DY02
DY03
DY04
DA01
DA02
DA03
DA04
DA05
DA06
DA07
DA08
DA09
DA10
DA11
DA12
DY50
DC03
RAC0
RAC1
RAC2
RAC3
RAC4
RAC5
RAC6
RAA1
RAA2
RAA3
RAA4
RAA5
RAA6
RAA7
RAA8
RAA9
RC01
RC02
RC04
RC05
RC06
RC16
RC17
CC02
CC03
RY29
RY30
RY64
RY65
RY63
RY62
RY60
RY59
RY58
RY61
RY57
RY51
RY56
RY52
RY53
RY54
RY67
RY68
RY50
RY66
RY28
RY27
RY17
RY18
RY16
RY25
RY22
RY46
RY26
RY19
RY24
RY21
RY20
RY23
RY45
RY48
RY14
RY47
RY44
RY01
RY02
RY03
RY04
RY05
RY06
RY07
RY08
RY09
RY10
RY11
RY12
RY15
RY31
RY32
RY33
RY34
RY35
RY36
RY37
RY38
RY39
RY40
RY41
RY42
RY43
RA01
RA02
RA03
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RA06
RA07
RA08
RA09
RA10
RA11
RA12
RA18
RA19
RA20
RA21
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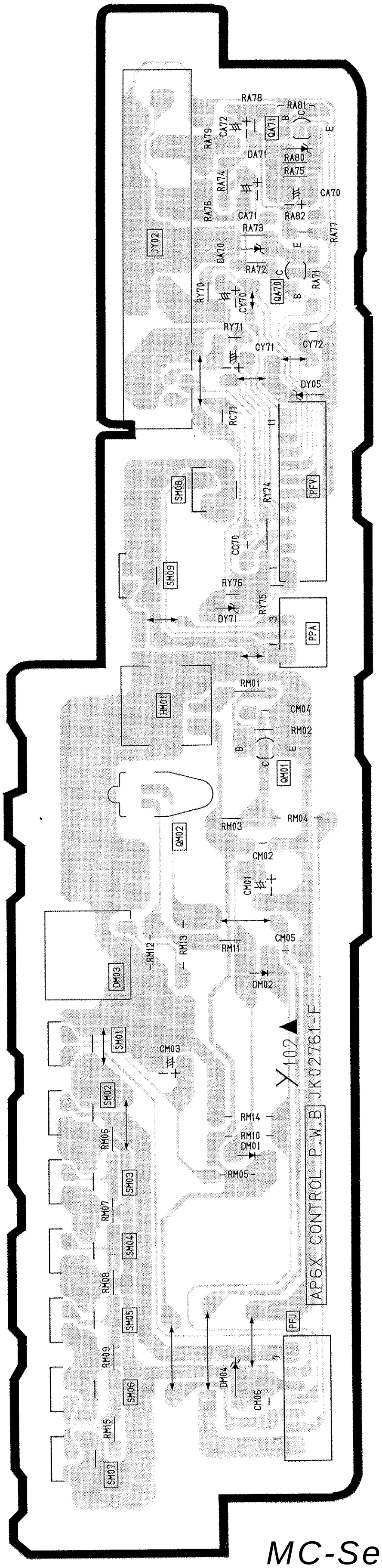
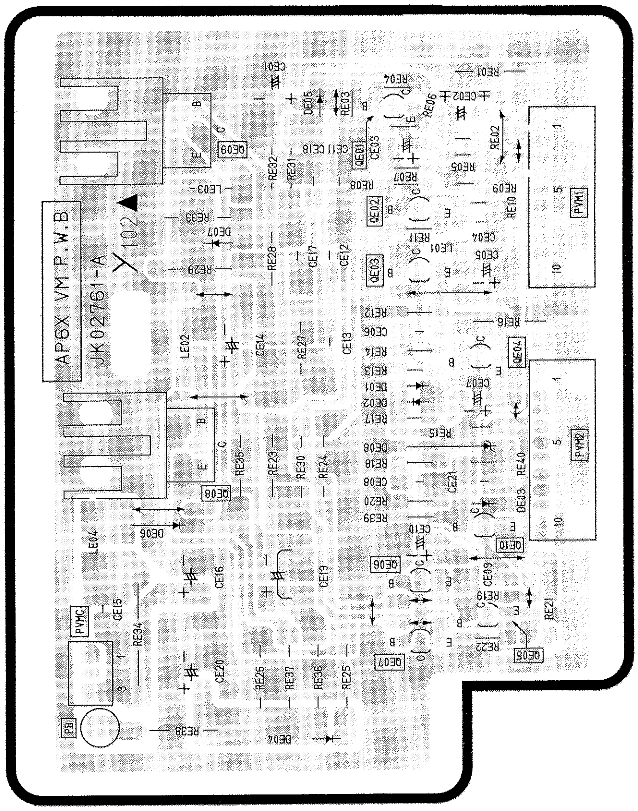
RA44
RA45
RA46
RA47
RA48
RA49
RA50
RA51
RA52
RA53
RA54
RA55
RA56
RA57
RA58
RA59
RA60
RA61
RA62
RA63
RA64
RA65
RA66
RA67
RA68
RA69
RA70
RA83
RA84
RA85
RA86
RA89
RA90
RA91
RA92
RA93
RA94
CY04
CY05
CY06
CY07
CY08
CY09
CY10
CY11
CY12
CY13
CY15
CY16
CY17
CY18
CY50
CY51
CY52
CY53
CY54
CY55
CY56
CY57
CY75
CA01
CA02
CA03
CA04
CA05
CA06
CA07
CA08
CA26
CA27
CA28
CA29
CA31
CA33
CA34
CA35
CA36
CA37
CA38
CA39
CA40
CA41
CA50
CA51
CA52
CA53
CA54
CA55
CA56
CA57
CA58
CA59
CA60
CA61
CA62
CA63
CA64
CA65
CA66
CA67
CA68
CA69
CA73
CA74
CA75
CA76
CA77
E
B
C
1
8
9
10
14
15
16
20
24
25
48

PRINTED CIRCUIT BOARD

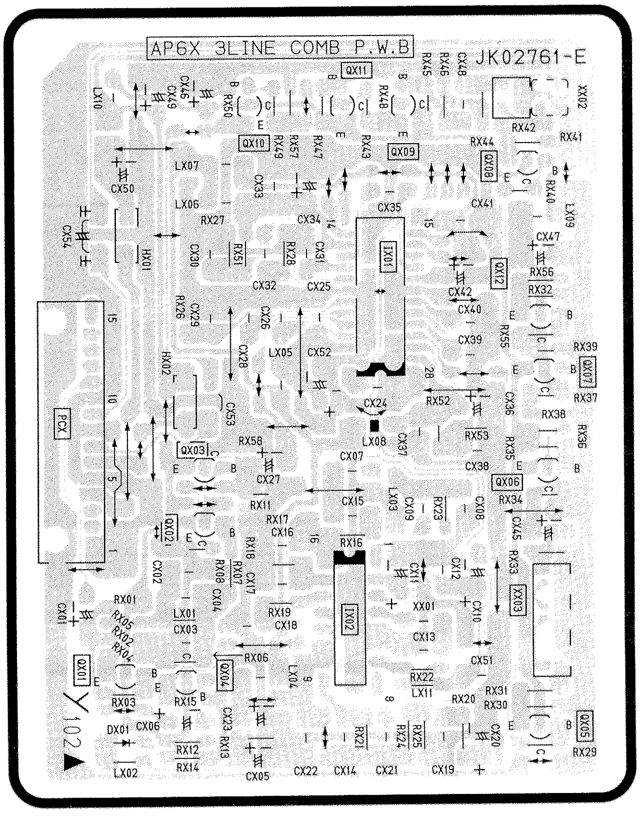
CONTROL P.C.B.


AP6X CONTROL P.W.B JK02761-F
Y102
JY02
PFV
PPA
HM01
QM01
QM02
DM03
SM01
SM02
SM03
SM04
SM05
SM06
SM07
SM08
SM09
PFJ
QA70
QA71

VM P.C.B.


AP6X VM P.W.B
JK02761-A
Y102
PVM1
PVM2
PVMC
PB
QE01
QE02
QE03
QE04
QE05
QE06
QE07
QE08
QE09
QE10

3 LINE COMB P.C.B.


AP6X 3LINE COMB P.W.B
JK02761-E
Y102
PCX
IX01
IX02
HX01
HX02
XX01
XX02
QX01
QX02
QX03
QX04
QX05
QX06
QX07
QX08
QX09
QX10
QX11
QX12

WIRING DIAGRAM

SI1

1	SCL 1
2	SDA 1
3	GND
4	SBLS
5	Y (VM)
6	V MUTE
7	NOISE
8	V
9	CONTRAST
10	9V
11	GND (VIDE)
12	RTX
13	GTX
14	BTX
15	SBRT
16	GND
17	GND
18	GND

SI2

1	TXCONT
2	HALFTONE
3	YS (VM)
4	PBLK
5	OSDG2
6	OSDR2
7	OSDBLK
8	HDDRIVE
9	VSYNC3
10	SYNC
11	C IN
12	NR
13	ABL
14	HBLK
15	VDRIVE
16	12V (HVCC)
17	12V (CPT)
18	GND (H)

U002

1	SCL 2
2	SDA 2
3	GND
4	YS (PinP)
5	R
6	G
7	B
8	V
9	H
10	9V
11	5V (Pinp)
12	GND
13	V OUT
14	GND
15	PinP V

SU1

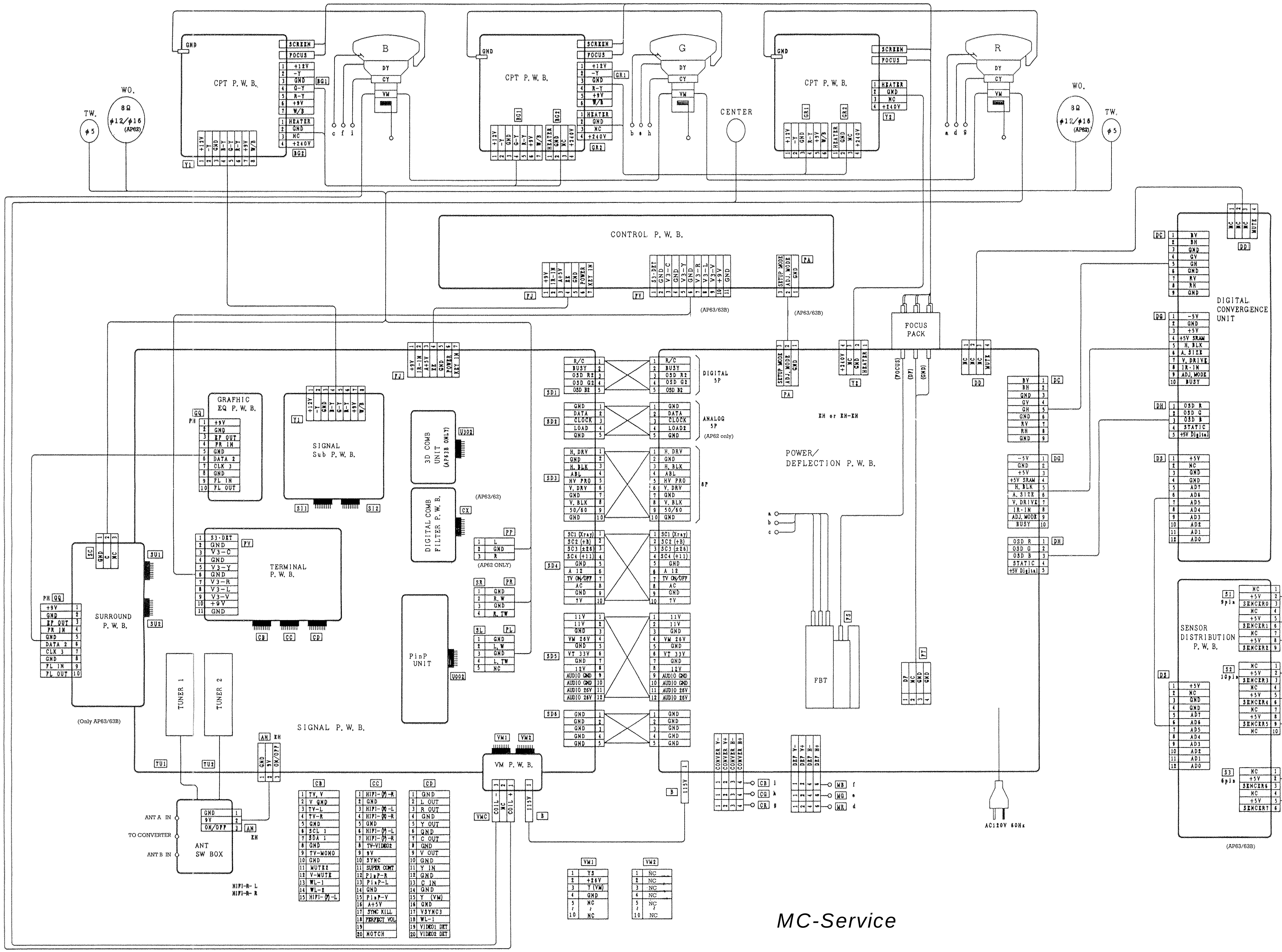
1	
2	
3	GND
4	SCL 1
5	SDA 1
6	CLK3/SPLZR
7	GND
8	PINP R IN
9	PINP L IN
10	GND
11	L
12	R
13	GND
14	F R OUT
15	F L OUT
16	F-SP OFF
17	PINP L OUT
18	PINP R OUT
19	+9V
20	GND

SU2

1	GND
2	ON MUTE 2
3	INPUT BAL
4	GND
5	HIFI (R) L
6	HIFI (R) R
7	VIDEO MUTE
8	SDA 2
9	SCL 2
10	CLOCK
11	DATA
12	LOAD 2
13	MUTE 2
14	GND
15	SVCC 2
16	SVCC 2
17	GND
18	GND

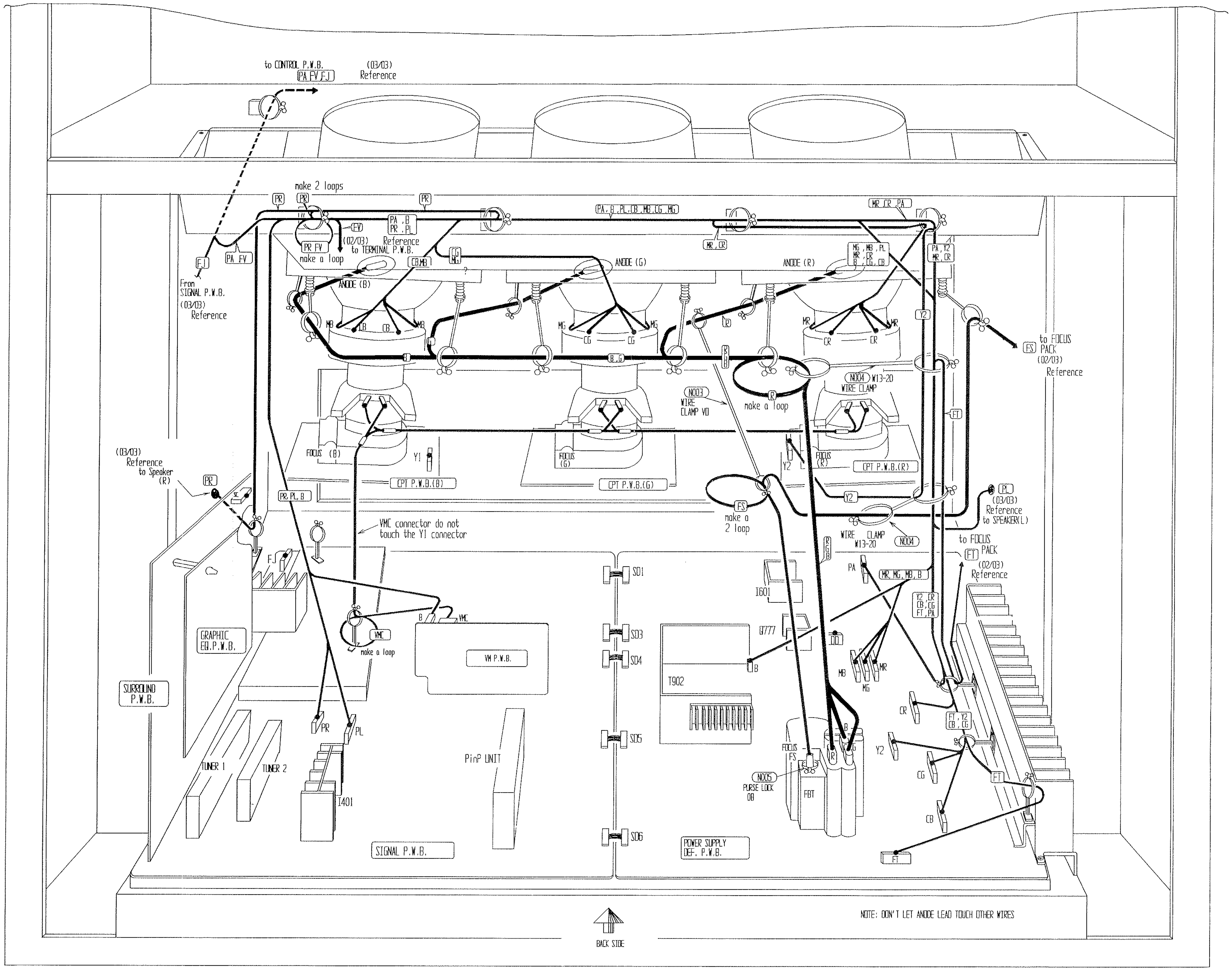
CX

1	GND
2	NC
3	NC
4	+5V
5	GND
6	+9V
7	C. OUT
8	GND
9	Y. OUT
10	GND
11	VIDEO IN
12	NC
13	NC
14	NC
15	NC

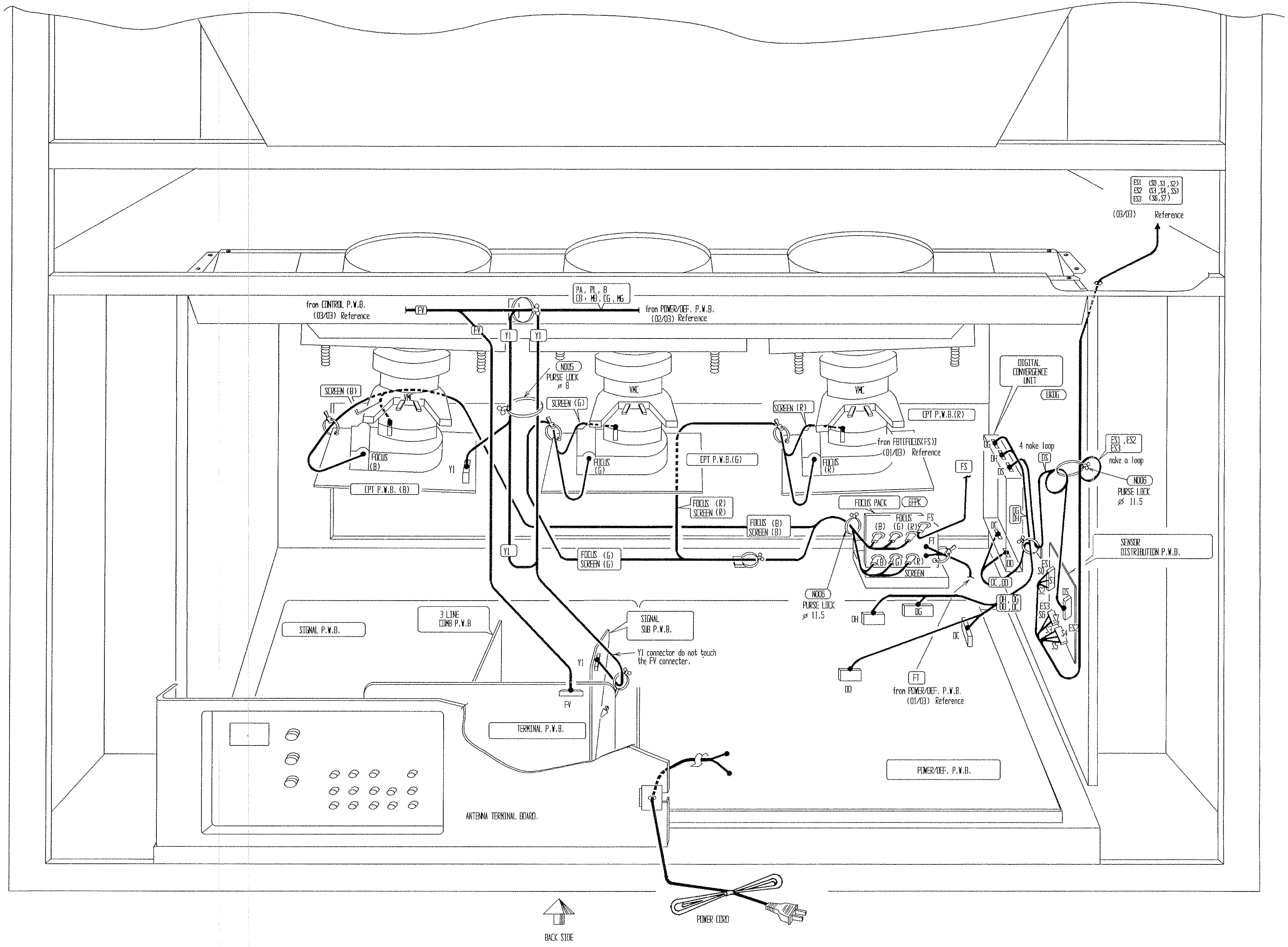

CPT P. W. B.
B
G
R
DY
CY
VM
SCREEN
FOCUS
HEATER
+240V
WO.
TW.
8Ω
ϕ12/ϕ16
(AP62)
ϕ5
CENTER
CONTROL P. W. B.
FOCUS PACK
DIGITAL CONVERGENCE UNIT
GRAPHIC EQ P. W. B.
SIGNAL Sub P. W. B.
3D COMB UNIT (AP63B ONLY)
DIGITAL COMB FILTER P. W. B.
TERMINAL P. W. B.
SURROUND P. W. B.
PinP UNIT
TUNER 1
TUNER 2
SIGNAL P. W. B.
VM P. W. B.
ANT SW BOX
ANT A IN
TO CONVERTER
ANT B IN
POWER/ DEFLECTION P. W. B.
EH or EH-EH
FBT
DIGITAL 5P
ANALOG 5P
(AP62 only)
8P
SENSOR DISTRIBUTION P. W. B.
(Only AP63/63B)
(AP63/63B)
(AP63/62)
(AP62 ONLY)
AC120V 60Hz
HIFI-R- L
HIFI-R- R

MC-Service

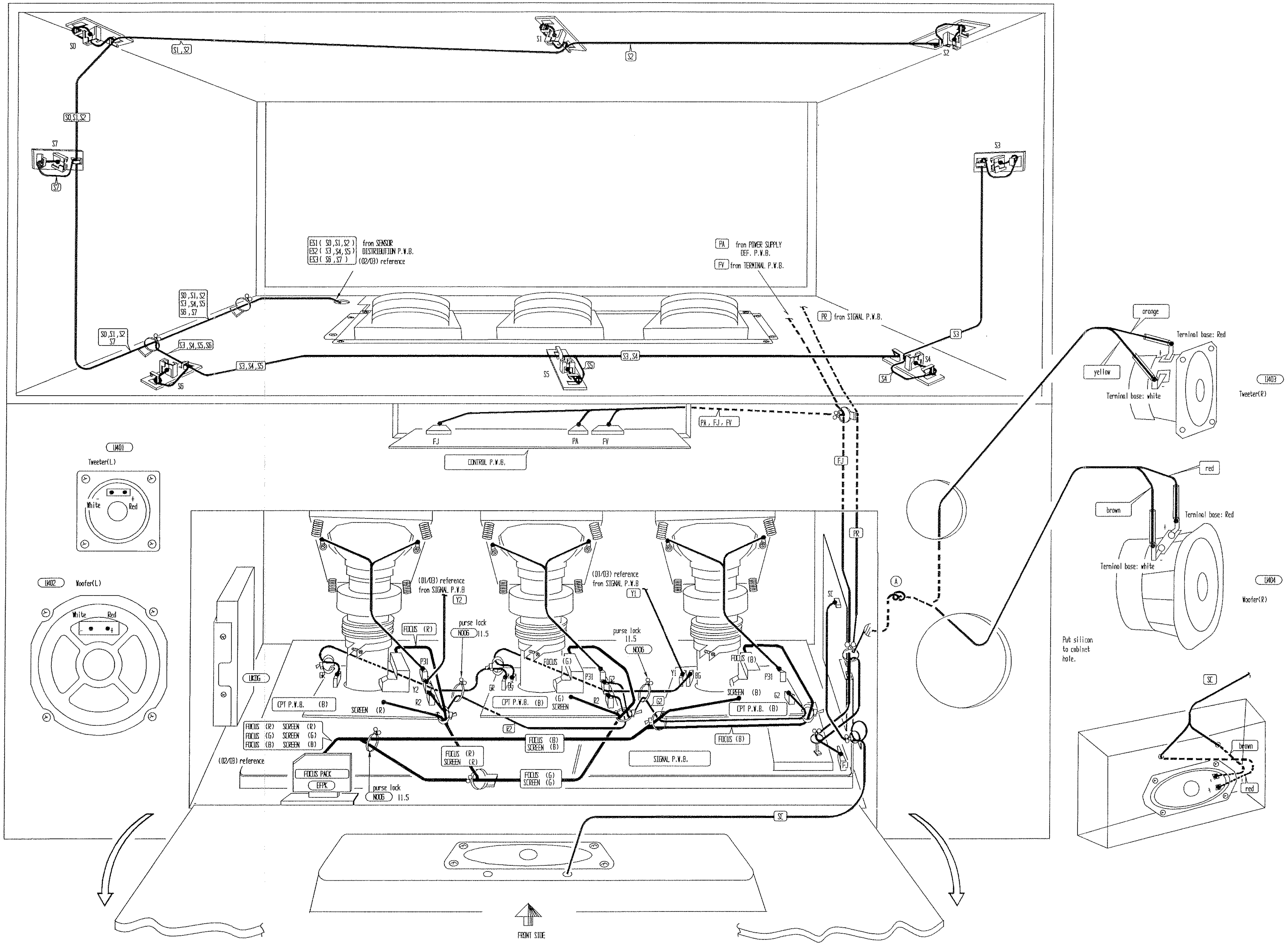
WIRE DRESS DRAWING (1/3)


to CONTROL P.W.B.
PA,FV,FJ
(03/03)
Reference
make 2 loops
PR
PR
PR
PA,B,PL,CB,MB,CG,MG
MR,CR,PA
FV
PA,B
PR,PL
PR FV
(02/03)
Reference
to TERMINAL P.W.B.
make a loop
CB,MB
CG
MG
MR,CR
MG,MB,PL
MR,CR
B,CG,CB
PA,Y2
MR,CR
ANODE (G)
ANODE (R)
ANODE (B)
FJ
PA,FV
From
SIGNAL P.W.B.
(03/03)
Reference
MB
CB
CB
MB
MG
CG
CG
MG
MR
CR
CR
MR
CR
Y2
to FOCUS
FS PACK
(02/03)
Reference
B,G
N004 W13-20
WIRE CLAMP
N003
WIRE
CLAMP VD
make a loop
FT
FOCUS (B)
Y1
FOCUS (G)
Y2
FOCUS (R)
CPT P.W.B.(R)
CPT P.W.B.(B)
CPT P.W.B.(G)
(03/03)
Reference
to Speaker
(R)
PR
PR,PL,B
FS
make a
2 loop
Y2
PL
(03/03)
Reference
to SPEAKER(L)
WIRE CLAMP
W13-20
N004
to FOCUS
FT PACK
(02/03)
Reference
VMC connector do not
touch the Y1 connector
FJ
SD1
R,G,B
PA
MR,MG,MB,B
I601
Y2,CR
CB,CG
FT,PA
B
VMC
VMC
make a loop
VM P.W.B.
SD3
SD4
Q777
DD
GRAPHIC
EQ.P.W.B.
B
MB
MG
MR
T902
SURROUND
P.W.B.
CR
FT,Y2
CB,CG
PR
PL
TUNER 1
TUNER 2
PinP UNIT
SD5
FOCUS
FS
R
G
B
Y2
CG
I401
N005
PURSE LOCK
08
FBT
FT
CB
SD6
SIGNAL P.W.B.
POWER SUPPLY
DEF. P.W.B.
FT
NOTE: DON'T LET ANODE LEAD TOUCH OTHER WIRES
BACK SIDE

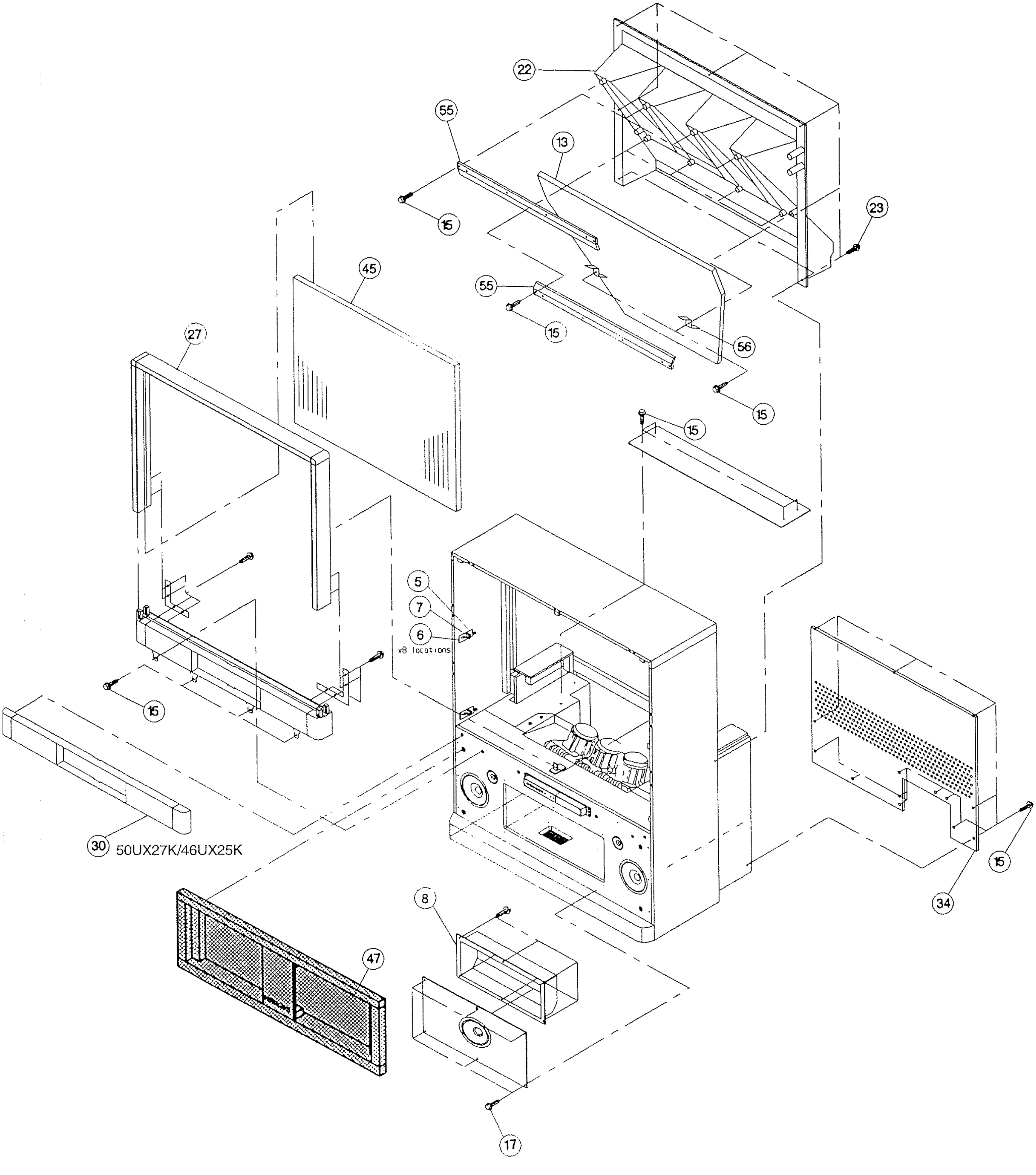
WIRE DRESS DRAWING (2/3)


ES1 (S0,S1,S2)
ES2 (S3,S4,S5)
ES3 (S6,S7)
(03/03) Reference
from CONTROL P.W.B.
(03/03) Reference
FV
PA, PL, B
CB, MB, CG, MG
from POWER/DEF. P.W.B.
(02/03) Reference
Y1
Y1
FV
N005
PURSE LOCK
ø 8
SCREEN (B)
VMC
FOCUS
(B)
Y1
CPT P.W.B. (B)
SCREEN (G)
VMC
FOCUS
(G)
CPT P.W.B.(G)
FOCUS (R)
SCREEN (R)
FOCUS (G)
SCREEN (G)
Y1
SCREEN (R)
VMC
CPT P.W.B.(R)
from FBT[FOCUS(FS)]
(01/03) Reference
FOCUS
(R)
FOCUS (B)
SCREEN (B)
FS
FOCUS PACK
EFPK
FOCUS
(B) (G) (R)
FS
FT
(B) (G) (R)
SCREEN
N006
PURSE LOCK
ø 11.5
DIGITAL
CONVERGENCE
UNIT
UKDG
DG
DH
DS
4 make loop
DS
DG
DH
DC
DD
DC,DD
DH, DG
DD, DC
ES1, ES2
ES3
make a loop
N006
PURSE LOCK
ø 11.5
SENSOR
DISTRIBUTION P.W.B.
ES1
S0
S1
S2
ES3
S6
S7
S3
S4
S5
ES2
DS
DH
DG
DC
DD
FT
from POWER/DEF. P.W.B.
(01/03) Reference
SIGNAL P.W.B.
3 LINE
COMB P.W.B
SIGNAL
SUB P.W.B.
Y1
Y1 connector do not touch
the FV connecter.
FV
TERMINAL P.W.B.
ANTENNA TERMINAL BOARD.
POWER/DEF. P.W.B.
BACK SIDE
POWER CORD

WIRE DRESS DRAWING (3/3)

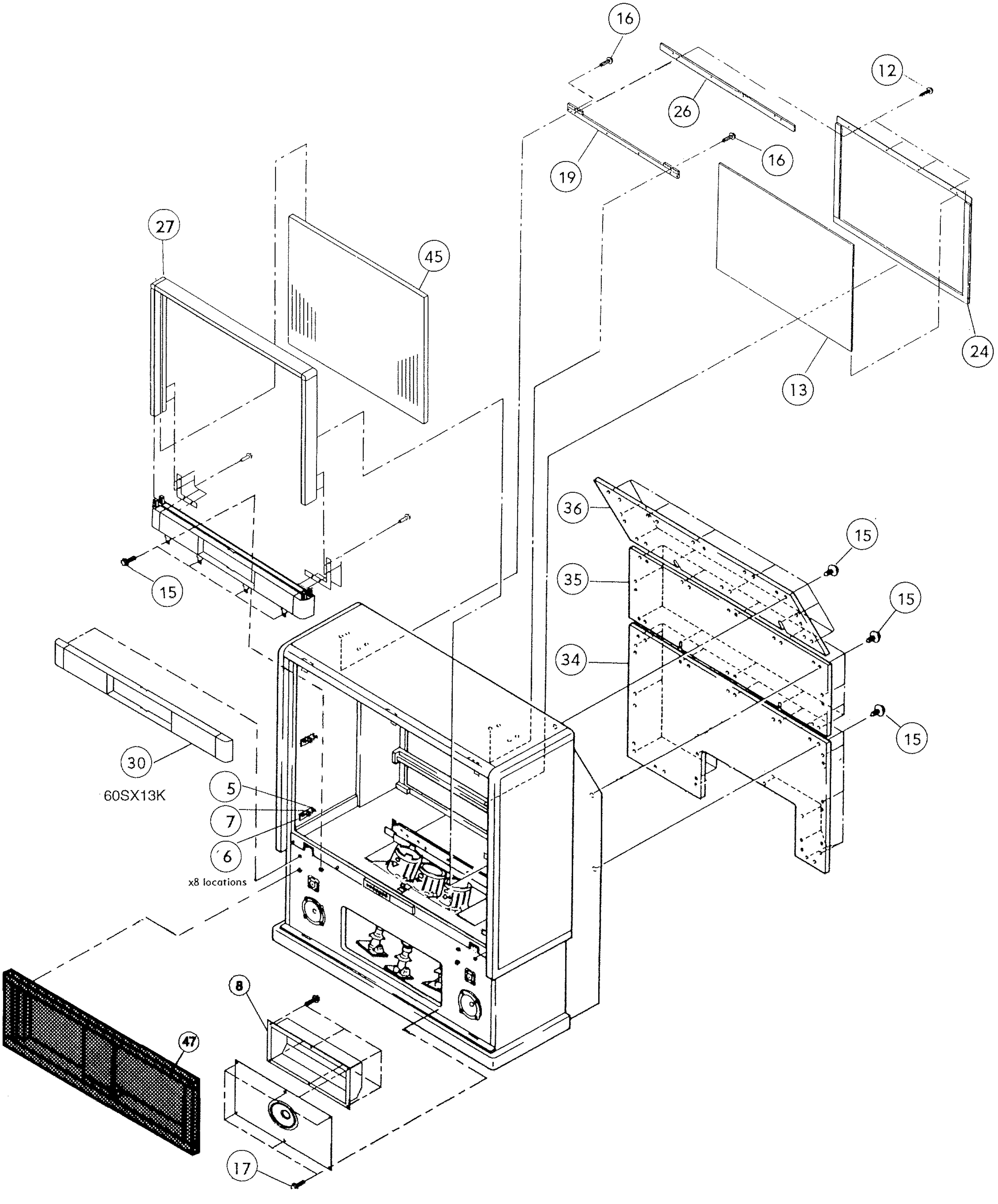

S0
S1
S2
S1,S2
S2
S0,S1,S2
S7
S7
S3
ES1 (S0,S1,S2)
ES2 (S3,S4,S5)
ES3 (S6,S7)
from SENSOR DISTRIBUTION P.W.B.
(02/03) reference
PA from POWER SUPPLY DEF. P.W.B.
FV from TERMINAL P.W.B.
PR from SIGNAL P.W.B.
S0,S1,S2
S3,S4,S5
S6,S7
S0,S1,S2
S7
S3,S4,S5,S6
S3,S4,S5
S3,S4
S3
S4
S4
S5
S5
S6
PA, FJ, FV
FJ
PA
FV
CONTROL P.W.B.
UA01
Tweeter(L)
White
Red
UA02
Woofer(L)
White
Red
orange
Terminal base: Red
yellow
Terminal base: white
UA03
Tweeter(R)
red
brown
Terminal base: Red
Terminal base: white
UA04
Woofer(R)
FJ
PR
A
Put silicon to cabinet hole.
(01/03) reference
from SIGNAL P.W.B
Y2
FOCUS (R)
purse lock
N006 11.5
(01/03) reference
from SIGNAL P.W.B
Y1
purse lock
11.5
N006
FOCUS (G)
FOCUS (B)
P31
P31
P31
GR
GR
BG
BG
Y2
Y1
R2
R2
G2
G2
SC
UKDG
CPT P.W.B. (B)
SCREEN (R)
CPT P.W.B. (B)
(G) SCREEN
G2
SCREEN (B)
CPT P.W.B. (B)
R2
FOCUS (R) SCREEN (R)
FOCUS (G) SCREEN (G)
FOCUS (B) SCREEN (B)
(02/03) reference
FOCUS PACK
EFPK
purse lock
N006 11.5
FOCUS (R)
SCREEN (R)
FOCUS (B)
SCREEN (B)
FOCUS (B)
FOCUS (G)
SCREEN (G)
SIGNAL P.W.B.
FJ
SC
SC
brown
red
FRONT SIDE

EXPLODED VIEW (46UX24B/25K, 50UX26B/27K, 50SX8B) (1/3)


22
55
13
23
15
45
55
15
56
27
15
15
5
7
6
x8 locations
15
30
50UX27K/46UX25K
15
34
8
47
17

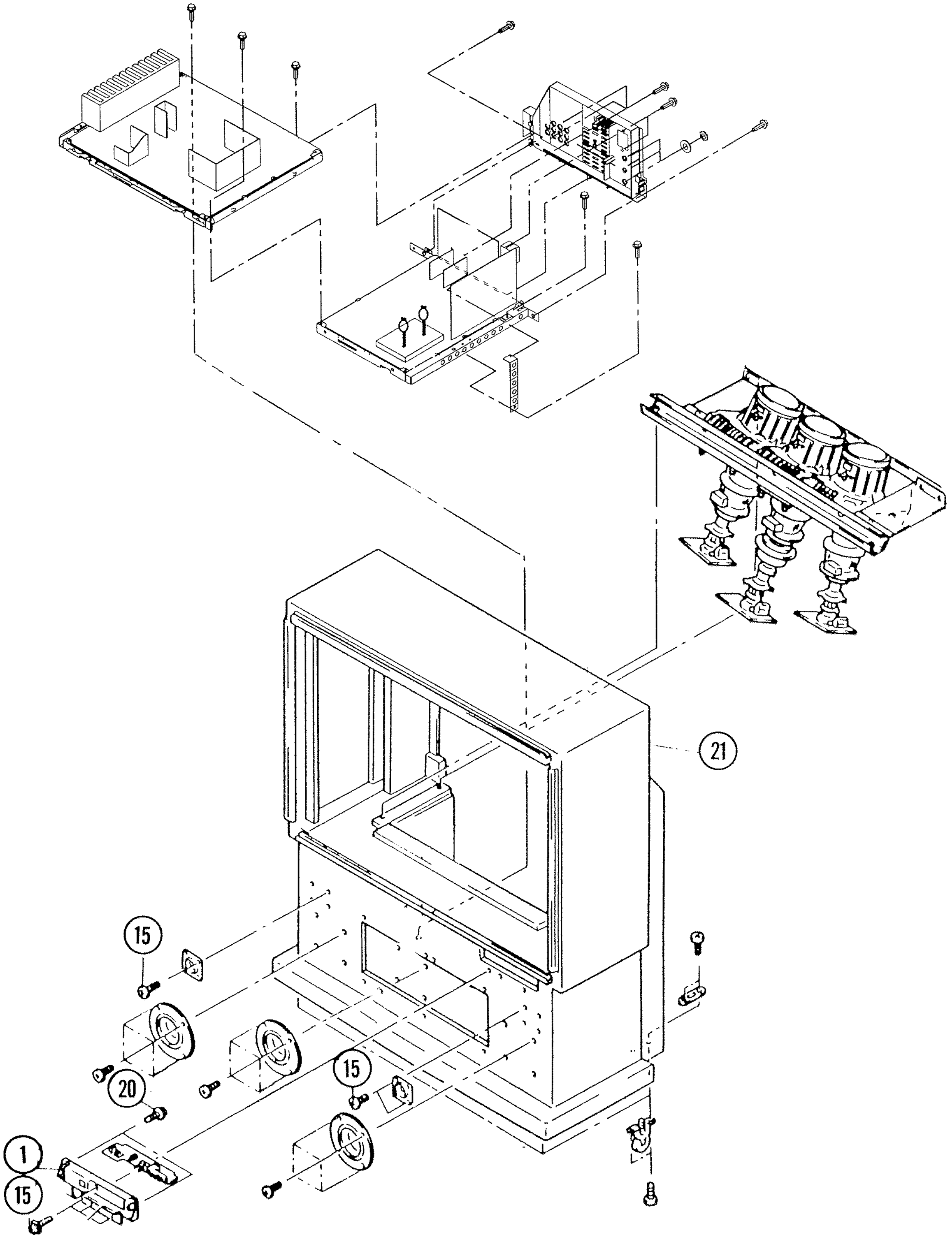
Note: Some parts may appear different than those shown in the exploded view. When ordering, refer to the REPLACEMENT PARTS LIST for correct part number. Since this Service Manual covers several models, use care to select the correct part for the model being serviced.

EXPLODED VIEW (60SX12B/13K) (1/3)


16
12
26
16
19
27
45
24
13
36
15
35
15
34
15
15
30
60SX13K
5
7
6
x8 locations
8
47
17

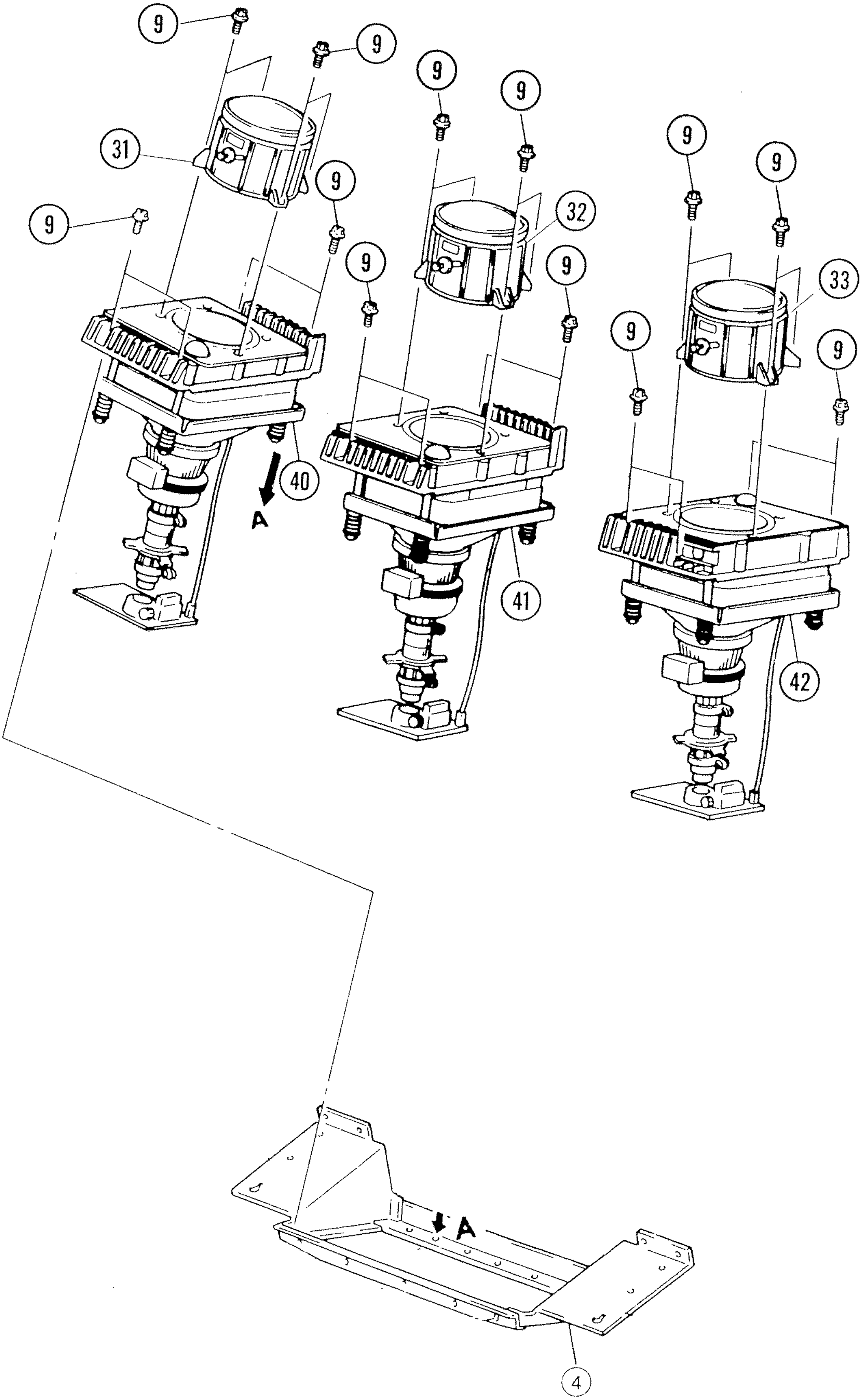
Note: Some parts may appear different than those shown in the exploded view. When ordering, refer to the REPLACEMENT PARTS LIST for correct part number. Since this Service Manual covers several models, use care to select the correct part for the model being serviced.

EXPLODED VIEW (2/3)



Note: Some parts may appear different than those shown in the exploded view. When ordering, refer to the REPLACEMENT PARTS LIST for correct part number. Since this Service Manual covers several models, use care to select the correct part for the model being serviced.

EXPLODED VIEW (3/3)



Note: Some parts may appear different than those shown in the exploded view. When ordering, refer to the REPLACEMENT PARTS LIST for correct part number. Since this Service Manual covers several models, use care to select the correct part for the model being serviced.

REPLACEMENT PARTS LIST

PRODUCT SAFETY NOTE: Components marked with a △ have special characters important to safety. Before replacing any of these components, read carefully, the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

ABBREVIATIONS

Capaitors:
- CD: Ceramic Disc
- PF: Polyester Film
- EL: Electrolytic
- PP: Polypropylene
- PR: Paper
- TA: Tantalum
- TM: Trimmer

Resistors:
- CF: Carbon Film
- CC: Carbon Composition
- MF: Metal Oxide Film
- VR: Variable Resistor
- WW: Wire Wound
- FR: Fuse Resistor
- MG: Metal Glaze

Semiconductors:
- TR: Transistor
- DI: Diode
- ZD: Zener Diode
- VA Varistor
- TH: Thermistor
- IC: Integrated Circuit

CIRCUIT BLOCK	SECOND CHARACTER OF SYMBOL NO.	CIRCUIT BLOCK	SECOND CHARACTER OF SYMBOL NO.	CIRCUIT BLOCK	SECOND CHARACTER OF SYMBOL NO.
System Control	0	Signal Control	Y	CPT	8
Tuner	1	(include composite)		Horizontal Deflection	7
Signal (Y) & SYNC.	3	Signal Control	C	Vertical Deflection	6
Signal (Chroma)	5	(include BPF)		Dynamic Focus	F
3 Line Comb	X	Signal Control	A	Convergence	K
Sound	4	(include MTS)		Sensor Distribution	L
Surround	S	PIP	P	Power Supply	9
MTS	W	VM	E	Graphic Eq.	G
SP Terminal	Z	CONTROL	M		

SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
		CAPACITORS	CA66	0800023R	EL 22UF-M 16V
			CA67	0800012R	EL 4.7UF-M 50V
CA01	0800003R	EL 1.0UF-M 50V	CA68	0800015R	EL 10UF-M 16V
CA02	0800003R	EL 1.0UF-M 50V	CA69	0800009R	EL 4.7UF-M 25V
CA03	0800003R	EL 1.0UF-M 50V	CA70	0800041R	EL 47UF-M 16V
CA04	0800003R	EL 1.0UF-M 50V	CA71	0800015R	EL 10UF-M 16V
CA05	0800003R	EL 1.0UF-M 50V	CA72	0800015R	EL 10UF-M 16V
CA06	0800003R	EL 1.0UF-M 50V	CA73	0800015R	EL 10UF-M 16V
CA07	0800003R	EL 1.0UF-M 50V	CA74	0800009R	EL 4.7UF-M 25V
CA08	0800003R	EL 1.0UF-M 50V	CA75	0800003R	EL 1.0UF-M 50V
CA26	0800015R	EL 10UF-M 16V	CA76	0800003R	EL 1.0UF-M 50V
CA27	0800015R	EL 10UF-M 16V	CA77	0800049R	EL 100UF-M 16V
CA28	0800015R	EL 10UF-M 16V	CA78	0800003R	EL 1.0UF-M 50V
CA29	0800015R	EL 10UF-M 16V	CA79	0284638R	EL 10UF-SME(BP) 16V
CA31	0800015R	EL 10UF-M 16V	CA80	0800015R	EL 10UF-M 16V
CA33	0800015R	EL 10UF-M 16V	CA81	0800015R	EL 10UF-M 16V
CA34	0800015R	EL 10UF-M 16V	CC02	0244171R	CD 0.01UF-Z F 50V TAPE
CA35	0800015R	EL 10UF-M 16V	CC03	0880044R	PF 0.01UF-KEB 50V (AP63B ONLY)
CA36	0800015R	EL 10UF-M 16V	CC70	0244171R	CD 0.01UF-Z F 50V TAPE
CA37	0800015R	EL 10UF-M 16V	CE01	0800075F	EL 470UF-M 25V
CA38	0800041R	EL 47UF-M 16V	CE02	0284621R	EL 0.47UF 50V (BP)
CA39	0800041R	EL 47UF-M 16V	CE03	0800041R	EL 47UF-M 16V
CA40	0800015R	EL 10UF-M 16V	CE04	0890081R	CD 330PF 50V
CA41	0800015R	EL 10UF-M 16V	CE05	0800049R	EL 100UF-M .6V
CA50	0284634R	EL 4.7UF-M 50V	CE06	0880044R	PF 0.01UF-KEB 50V
CA51	0800009R	EL 4.7UF-M 25V	CE07	0800049R	EL 100UF-M .6V
CA52	0284634R	EL 4.7UF-M 50V	CE08	0276717R	PF 0.1UF-J 50V (TF TYP E)
CA53	0800015R	EL 10UF-M 16V	CE09	0276717R	PF. 0.1UF-J 50V (TF TYP E)
CA54	0800015R	EL 10UF-M 16V	CE10	0800042R	EL 47UF-M 25V
CA55	0284634R	EL 4.7UF-M 50V	CE11	0890074R	CD 100PF-J 50V
CA56	0800015R	EL 10UF-M 16V	CE12	0244541F	CD 0.01MF-K B 500V
CA57	0284634R	EL 4.7UF-M 50V	CE13	0244541F	CD 0.01MF-K B 500V
CA58	0284638R	EL10UF-SME(BP) 16V	CE14	AL00009R	EL. 47UF 160V
CA59	0284638R	EL10UF-SME(BP) 16V	CE15	0247848R	CD 56PF-J SL 500V
CA60	0800049R	EL 100UF-M 16V	CE16	AL00007R	EL 220UF16
CA61	0880057R	PF 0.1UF-KEB 50V	CE17	0244509R	CD 4700PF-KB B 500V
CA62	0880053R	PF 0.047UF-KEB 50V	CE18	0890074R	CD 100PF-J 50V
CA63	0284638R	EL10UF-SME(BP) 16V	CE19	AL00009R	EL 47UF 160V
CA64	0800015R	EL 10UF-M 16V	CE20	AL00009R	EL 47UF 160V
CA65	0284638R	EL10UF-SME(BP) 16V	CE21	0890077R	CD 180PF-K 50V

REPLACEMENT PARTS LIST

PRODUCT SAFETY NOTE: Components marked with a ⚠ have special characters important to safety. Before replacing any of these components, read carefully, the PRODUCT SAFETY NOTICE of this Service Manual. Don't degrade the safety of the receiver through improper servicing.

SYMBOL NO.	PART NO.	PART DESCRIPTION
CF01	0800317R	EL 47UF-M(SMG) 16V
CF02	0800353R	EL 470UF-M 16V
CF03	0284638R	EL10UF-SME(BP) 16V
CF04	0800291R	EL10UF-M(SMG) 16V
CF05	0276721R	PF 0.22UF-J 50V (TF TY PE)
CF06	0800291R	EL10UF-M(SMG) 16V
CF07	0880041R	PF 0.0056UF-KEB50V
CF08	0244120R	CD 820PF-K B 50V
CF09	0284642R	EL10UF-SME(BP)50V
CF10	0890083R	CD 470PF-K 50V
CF11	0800291R	EL10UF-M(SMG) 16V
CF12	AN00062R	PF 103UF 50V
CF13	0890082R	CD 390PF-K 50V
CF14	0800353R	EL 470UF-M 16V
CF15	0284638R	EL10UF-SME(BP) 16V
CF16	0800291R	EL10UF-M(SMG) 16V
CF17	0244109R	CD 4700PF-KB 50V
CG01	0800353R	EL 470UF-M 16V
CG02	0800049R	EL 100UF-M 16V
CG03	0880057R	PF 0.1UF-KEB 50V
CG04	0880057R	PF 0.1UF-KEB 50V
CG05	0800049R	EL 100UF-M 16V
CG06	0284623R	EL 1UF-SME(BP) 50V
CG07	0880057R	PF 0.1UF-KEB 50V
CG08	0880057R	PF 0.1UF-KEB 50V
CG09	0284623R	EL 1UF-SME(BP) 50V
CG10	0284621R	EL 0.47UF 50V (BP)
CG11	0880052R	PF 0.039UF-KEB 50V
CG12	0880052R	PF 0.039UF-KEB 50V
CG13	0284621R	EL 0.47UF 50V (BP)
CG14	0880062R	PF 0.22UF-KEB 50V
CG15	0880046R	PF 0.015UF-K 50V
CG16	0880046R	PF 0.015UF-K 50V
CG17	0880062R	PF 0.22UF-KEB 50V
CG18	0880056R	PF 0.082UF-KEB 50V
CG19	0880041R	PF 0.0056UF-KEB50V
CG20	0880041R	PF 0.0056UF-KEB50V
CG21	0880056R	PF 0.082UF-KEB 50V
CG22	0880052R	PF 0.039UF-KEB 50V
CG23	0880037R	PF 0.0033UF-KEB50V
CG24	0880037R	PF 0.0033UF-KEB50V
CG25	0880052R	PF 0.039UF-KEB 50V
CG26	0880047R	PF 0.018UF-KEB 50V
CG27	0880032R	PF 0.0012UF-KEB50V
CG28	0880032R	PF 0.0012UF-KEB50V
CG29	0880047R	PF 0.018UF-KEB 50V
CG30	0880043R	PF 0.0082UF-KEB50V
CG31	0890084R	CD 560PF-K 50V
CG32	0890084R	CD 560PF-K 50V
CG33	0880043R	PF 0.0082UF-KEB50V
CG34	0284638R	EL 10UF-SME(BP) 16V
CG35	0800015R	EL 10UF-M 16V
CG36	0284638R	EL 10UF-SME(BP) 16V
CG37	0800015R	EL 10UF-M 16V
CG38	0800041R	EL 47UF-M 16V
CG39	0800015R	EL 10UF-M 16V
CG40	0800015R	EL 10UF-M 16V
CK01	0800326R	EL 100UF-M 16V
CK02	0244141R	CD 0.01UF-KB B 50V
CK03	0800326R	EL 100UF-M 16V
CK04	0244141R	CD 0.01UF-KB B 50V
CK05	AN00075R	PF 104UF 50V)
CK06	0800326R	EL 100UF-M 16V
CK07	0800326R	EL 100UF-M 16V
CK08	AN00075R	PF 104UF 50V
CK10	0800353R	EL 470UF-M 16V
CK11	0800058R	EL 220UF-M 16V
CK13	AN00075R	PF 104UF 50V
CK14	AN00075R	PF 104UF 50V
CK15	0248688R	CD 150PF-J SL 50V
CK17	0248688R	CD 150PF-J SL 50V
CK19	0248688R	CD 150PF-J SL 50V
CK21	0248688R	CD 150PF-J SL 50V
CK23	0248688R	CD 150PF-J SL 50V
CK25	0248688R	CD 150PF-J SL 50V
CK27	0258175G	EL 470UF 50V
CK28	0258175G	EL 470UF 50V
CK29	0248688R	CD 150PF-J SL 50V
CK30	0248688R	CD 150PF-J SL 50V
CK31	0248688R	CD 150PF-J SL 50V
CK32	0248688R	CD 150PF-J SL 50V
CK33	0248688R	CD 150PF-J SL 50V
CK34	0248688R	CD 150PF-J SL 50V
CK41	0248688R	CD 150PF-J SL 50V
CK42	0880031R	PF 1000PF-K 50V
CK45	0880042R	PF 0.0068UF-KEB50V
CK46	0880044R	PF 0.01UF-KEB 50V
CK47	0880044R	PF 0.01UF-KEB 50V
CK51	0800321R	EL 47UF-M 50V
CK52	0800321R	EL 47UF-M 50V
CK53	0800321R	EL 47UF-M 50V
CK54	0800321R	EL 47UF-M 50V
CK55	0800321R	EL 47UF-M 50V
CK56	0800321R	EL 47UF-M 50V
CL01	0880053R	PF 0.047UF-KEB 50V
CL02	0880053R	PF 0.047UF-KEB 50V
CL03	0880053R	PF 0.047UF-KEB 50V
CL04	0880053R	PF 0.047UF-KEB 50V
CL05	0880053R	PF 0.047UF-KEB 50V
CL06	0880053R	PF 0.047UF-KEB 50V
CL07	0880053R	PF 0.047UF-KEB 50V
CL08	0880053R	PF 0.047UF-KEB 50V
CL09	0800049R	EL 100UF-M 16V
CL10	0880057R	PF 0.1UF-KEB 50V
CM01	0800023R	EL 22UF-M 16V
CM02	0244171R	CD 0.01UF-Z F 50V TAPE
CM03	0800003R	EL 1.0UF-M 50V
CM04	0244171R	CD 0.01UF-Z F 50V TAPE
CM05	0244171R	CD 0.01UF-Z F 50V TAPE
CM06	0880057R	PF 0.1UF-KEB 50V
CN01	0800279R	EL 1.0UF-M(SMG) 50V
CN02	0800288R	EL 4.7UF-M(SMG) 50V
CN03	0880051R	PF 0.033UF-KEB 50V
CN04	0890084R	CD 560PF-K 50V
CN05	0800041R	EL 47UF-M 16V
CN06	0800018R	EL 10UF-M 50V
CSA1	0284638R	EL 10UF-SME(BP) 16V
CSA2	0890087R	CD 1000PF-K 50V
CSA3	0890087R	CD 1000PF-K 50V
CSA4	0284638R	EL 10UF-SME(BP) 16V
CSA5	0880051R	PF 0.033UF-KEB 50V
CSA6	0880041R	PF 0.0056UF-KEB50V
CSA7	0880041R	PF 0.0056UF-KEB50V
CSA8	0880051R	PF 0.033UF-KEB 50V
CSA9	0880057R	PF 0.1UF-KEB 50V
CSC1	0800049R	EL 100UF-M 16V
CSC2	0800049R	EL 100UF-M 16V
CSC3	0800015R	EL 10UF-M 16V

REPLACEMENT PARTS LIST

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
CSC4	0800015R	EL 10UF-M 16V	CS32	0800012R	EL 4.7UF-M 50V
CSC5	0800015R	EL 10UF-M 16V	CS33	0880059R	PF 0.15UF-KEB 50V
CSC6	0800015R	EL 10UF-M 16V	CS34	0800007R	EL 3.3UF-M 50V
CSC7	0800015R	EL 10UF-M 16V	CS35	0880059R	PF 0.15UF-KEB 50V
CSC8	0800015R	EL 10UF-M 16V	CS36	0284638R	EL 10UF-SME(BP) 16V
CSC9	0800003R	EL 1.0UF-M 50V	CS37	0284638R	EL 10UF-SME(BP) 16V
CSE1	0800003R	EL 1.0UF-M 50V	CS38	0880057R	PF 0.1UF-KEB 50V
CSE2	0800003R	EL 1.0UF-M 50V	CS39	0800058R	EL 220UF-M 16V
CSE3	0890087R	CD 1000PF-K 50V	CS40	0246451R	CD 30PF-JB CH 50V
CSE4	0890087R	CD 1000PF-K 50V	CS41	0246451R	CD 30PF-JB CH 50V
CSE5	0890087R	CD 1000PF-K 50V	CS42	0800058R	EL 220UF-M 16V
CSE6	0800015R	EL 10UF-M 16V	CS43	0880051R	PF 0.033UF-KEB 50V
CSE7	0800015R	EL 10UF-M 16V	CS44	0880033R	PF 0.0015UF-KEB50V
CSE8	0800003R	EL 1.0UF-M 50V	CS45	0880051R	PF 0.033UF-KEB 50V
CSE9	0800042R	EL 47UF-M 25V	CS46	0800003R	EL 1.0UF-M 50V
CSF1	0800042R	EL 47UF-M 25V	CS47	0800015R	EL 10UF-M 16V
CSF2	0800042R	EL 47UF-M 25V	CS48	0800015R	EL 10UF-M 16V
CSF3	0800051R	EL 100UF-M 25V	CS49	0800058R	EL 220UF-M 16V
CSF6	0800042R	EL 47UF-M 25V	CS50	0800015R	EL 10UF-M 16V
CSF7	0800042R	EL 47UF-M 25V	CS51	0800015R	EL 10UF-M 16V
CSF8	0800051R	EL 100UF-M 25V	CS52	0800003R	EL 1.0UF-M 50V
CSF9	0800084F	EL 1000UF-M 35V	CS53	0284623R	EL 1UF-SME(BP) 50V
CSG2	0880057R	PF 0.1UF-KEB 50V	CS54	0284623R	EL 1UF-SME(BP) 50V
CSG3	0880057R	PF 0.1UF-KEB 50V	CS55	0800005R	EL 2.2UF-M 50V
CSG4	0880057R	PF 0.1UF-KEB 50V	CS56	0800041R	EL 47UF-M 16V
CSG5	0800083F	EL 1000UF-M 25V	CS57	0800058R	EL 220UF-M 16V
CSG6	0800083F	EL 1000UF-M 25V	CS58	0880057R	PF 0.1UF-KEB 50V
CSG7	0800083F	EL 1000UF-M 25V	CS59	0880044R	PF 0.01UF-KEB 50V
CSG8	0880057R	PF 0.1UF-KEB 50V	CS60	0880053R	PF 0.047UF-KEB 50V
CSG9	0880057R	PF 0.1UF-KEB 50V	CS61	0800015R	EL 10UF-M 16V
CSH1	0880057R	PF 0.1UF-KEB 50V	CS62	0880203R	PF 0.47UF-J 50V
CSH2	0800329R	EL 100UF-M(SMG) 50V	CS64	0800015R	EL 10UF-M 16V
CSH3	0800041R	EL 47UF-M 16V	CS65	0890087R	CD 1000PF-K 50V
CSH4	0800015R	EL 10UF-M 16V	CS66	0800015R	EL 10UF-M 16V
CSH5	0800015R	EL 10UF-M 16V	CS67	0890087R	CD 1000PF-K 50V
CS01	0880057R	PF 0.1UF-KEB 50V	CS68	0880051R	PF 0.033UF-KEB 50V
CS02	0800049R	EL 100UF-M 16V	CS69	0880041R	PF 0.0056UF-KEB50V
CS03	0890085R	CD 680PF-K 50V	CS70	0880041R	PF 0.0056UF-KEB50V
CS06	0800015R	EL 10UF-M 16V	CS71	0880051R	PF 0.033UF-KEB 50V
CS07	0880203R	PF 0.47UF-J 50V	CS72	0880057R	PF 0.1UF-KEB 50V
CS08	0800041R	EL 47UF-M 16V	CS73	0800049R	EL 100UF-M 16V
CS09	0880057R	PF 0.1UF-KEB 50V	CS74	0800049R	EL 100UF-M 16V
CS10	0880057R	PF 0.1UF-KEB 50V	CS75	0284638R	EL 10UF-SME(BP) 16V
CS11	0800001R	EL 0.47UF-M 50V (SME)	CS76	0284638R	EL 10UF-SME(BP) 16V
CS12	0800012R	EL 4.7UF-M 50V	CS98	0800049R	EL 100UF-M 16V
CS13	0800001R	EL 0.47UF-M 50V (SME)	CS99	0800015R	EL 10UF-M 16V
CS14	0800012R	EL 4.7UF-M 50V	CX01	0800041R	EL 47UF-M 16V (AP63 ONLY)
CS15	0880059R	PF 0.15UF-KEB 50V	CX02	0890065R	CD 22PF-J 50V (AP63 ONLY)
CS16	0800007R	EL 3.3UF-M 50V	CX03	0890061R	CD 10PF- 50V (AP63 ONLY)
CS17	0880059R	PF 0.15UF-KEB 50V	CX04	0890064R	CD 18PF-J SL 50V (AP63 ONLY)
CS18	0880048R	PF 0.022UF-KEB 50V	CX05	0800049R	EL 100UF-M 16V (AP63 ONLY)
CS19	0880053R	PF 0.047UF-KEB 50V	CX06	0800009R	EL 4.7UF-M 25V (AP63 ONLY)
CS20	0800058R	EL 220UF-M 16V	CX07	0880031R	PF 1000PF-K 50V (AP63 ONLY)
CS21	0800015R	EL 10UF-M 16V	CX08	0890071R	CD 56PF-J 50V (AP63 ONLY)
CS22	0800015R	EL 10UF-M 16V	CX09	0880044R	PF 0.01UF-KEB 50V (AP63 ONLY)
CS23	0800015R	EL 10UF-M 16V	CX10	0800005R	EL 2.2UF-M 50V (AP63 ONLY)
CS24	0800015R	EL 10UF-M 16V	CX11	0800009R	EL 4.7UF-M 25V (AP63 ONLY)
CS25	0284623R	EL 1UF-SME(BP) 50V	CX12	0244171R	CD 0.01UF-Z F 50V TAPE (AP63 ONLY)
CS26	0284623R	EL 1UF-SME(BP) 50V	CX13	0246443R	CD 13PF (C) 50WV (AP63 ONLY)
CS27	0880057R	PF 0.1UF-KEB 50V	CX14	0880044R	PF 0.01UF-KEB 50V (AP63 ONLY)
CS28	0880057R	PF 0.1UF-KEB 50V	CX15	0284621R	EL 0.47UF 50V (BP) (AP63 ONLY)
CS29	0800001R	EL 0.47UF-M 50V (SME)	CX16	0890089R	CD 1500PF-K 50V (AP63 ONLY)
CS30	0800012R	EL 4.7UF-M 50V	CX17	0890082R	CD 390PF-K 50V (AP63 ONLY)
CS31	0800001R	EL 0.47UF-M 50V (SME)	CX18	0890074R	CD 100PF-J 50V (AP63 ONLY)

REPLACEMENT PARTS LIST

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SYMBOL NO.	PART NO.	PART DESCRIPTION
CX19	0890087R	CD 1000PF-K 50V (AP63 ONLY)
CX20	0800009R	EL 4.7UF-M 25V (AP63 ONLY)
CX21	0890109R	CD T6R0D50D3 (AP63 ONLY)
CX22	0244171R	CD 0.01UF-Z F 50V TAPE (AP63 ONLY)
CX23	0800048R	EL 100UF-M 10V (AP63 ONLY)
CX24	0244171R	CD 0.01UF-Z F 50V TAPE (AP63 ONLY)
CX25	0244171R	CD 0.01UF-Z F 50V TAPE (AP63 ONLY)
CX26	0244171R	CD 0.01UF-Z F 50V TAPE (AP63 ONLY)
CX27	0800009R	EL 4.7UF-M 25V (AP63 ONLY)
CX28	0244171R	CD 0.01UF-Z F 50V TAPE (AP63 ONLY)
CX29	0880053R	PF 0.047UF-KEB 50V (AP63 ONLY)
CX30	0244171R	CD 0.01UF-Z F 50V TAPE (AP63 ONLY)
CX31	0248690R	CD 180PF-J SL 50V (AP63 ONLY)
CX32	0880044R	PF 0.01UF-KEB 50V (AP63 ONLY)
CX33	0244171R	CD 0.01UF-Z F 50V TAPE (AP63 ONLY)
CX34	0800048R	EL 100UF-M 10V (AP63 ONLY)
CX35	0880044R	PF 0.01UF-KEB 50V (AP63 ONLY)
CX36	0800048R	EL 100UF-M 10V (AP63 ONLY)
CX37	0244171R	CD 0.01UF-Z F 50V TAPE (AP63 ONLY)
CX38	0244171R	CD 0.01UF-Z F 50V TAPE (AP63 ONLY)
CX39	0244171R	CD 0.01UF-Z F 50V TAPE (AP63 ONLY)
CX40	0244171R	CD 0.01UF-Z F 50V TAPE (AP63 ONLY)
CX41	0244171R	CD 0.01UF-Z F 50V TAPE (AP63 ONLY)
CX42	0800057R	EL 220UF-M 10V (AP63 ONLY)
CX45	0800015R	EL 10UF-M 16V (AP63 ONLY)
CX46	0800049R	EL 100UF-M 16V (AP63 ONLY)
CX47	0800049R	EL 100UF-M 16V (AP63 ONLY)
CX48	0880044R	PF 0.01UF-KEB 50V (AP63 ONLY)
CX49	0800049R	EL 100UF-M 16V (AP63 ONLY)
CX50	0800048R	EL 100UF-M 10V (AP63 ONLY)
CX52	0800048R	EL 100UF-M 10V (AP63 ONLY)
CX53	0880044R	PF 0.01UF-KEB 50V (AP63 ONLY)
CX54	0284647R	EL 22UF-SME(BP) 16V (AP63 ONLY)
CY01	0284647R	EL 22UF-SME(BP) 16V
CY04	0800023R	EL 22UF-M 16V
CY05	0800023R	EL 22UF-M 16V
CY06	0800023R	EL 22UF-M 16V
CY07	0800023R	EL 22UF-M 16V
CY08	0800049R	EL 100UF-M 16V
CY09	0276717R	PF 0.1UF-J 50V (TF TYP E)
CY10	0284638R	EL 10UF-SME(BP) 16V
CY11	0800015R	EL 10UF-M 16V
CY12	0800049R	EL 100UF-M 16V
CY13	0890089R	CD 1500PF-K 50V
CY14	0800074N	EL 470UF-M 16V
CY15	0276717R	PF 0.1UF-J 50V (TF TYP E)
CY16	0800049R	EL 100UF-M 16V
CY17	0800041R	EL 47UF-M 16V
CY18	0284638R	EL 10UF-SME(BP) 16V (AP63B ONLY)
CY50	0800049R	EL 100UF-M 16V
CY51	0284634R	EL 4.7UF-M 50V
CY52	0880011R	EL 0.015UF
CY53	0800015R	EL 10UF-M 16V
CY54	0880013R	EL 0.033UF
CY55	0880006R	EL 0.033UF
CY56	0880006R	EL 0.033UF
CY57	0880016R	PF FILM 0.1UF 50V
CY70	0800015R	EL 10UF-M 16V
CY71	0800015R	EL 10UF-M 16V
CY72	0244171R	CD 0.01UF-Z F 50V TAPE
CY75	0800023R	EL 22UF-M 16V
C002	0890078R	CD 220PF-K 50V
C003	0246464R	CD 100PF-J CH 50V TAPE
C004	0800023R	EL 22UF-M 16V
C005	0890087R	CD 1000PF-K 50V
C006	0284623R	EL 1UF-SME(BP) 50V
C007	0284623R	EL 1UF-SME(BP) 50V
C008	0284623R	EL 1UF-SME(BP) 50V
C009	0284623R	EL 1UF-SME(BP) 50V
C010	0284623R	EL 1UF-SME(BP) 50V
C011	0800003R	EL 1.0UF-M 50V
C012	0800003R	EL 1.0UF-M 50V
C013	0284623R	EL 1UF-SME(BP) 50V
C014	0800003R	EL 1.0UF-M 50V
C015	0800015R	EL 10UF-M 16V
C016	0890121R	CD 33PF-J CH 50V
C017	0890121R	CD 33PF-J CH 50V
C018	0800015R	EL 10UF-M 16V
C019	0800005R	EL 2.2UF-M 50V
C022	0800015R	EL 10UF-M 16V
C023	0800047R	EL 100UF-M 6.3V
C024	0880057R	PF 0.1UF-KEB 50V
C025	0880044R	PF 0.01UF-KEB 50V
C026	0880057R	PF 0.1UF-KEB 50V
C027	0800012R	EL 4.7UF-M 50V
C028	0800012R	EL 4.7UF-M 50V
C029	0890074R	CD 100PF-J 50V
C031	0800003R	EL 1.0UF-M 50V
C032	0800047R	EL 100UF-M 6.3V
C033	0880057R	PF 0.1UF-KEB 50V
C034	0890085R	CD 680PF-K 50V
C035	0800015R	EL 10UF-M 16V
C036	0800047R	EL 100UF-M 6.3V
C037	0880057R	PF 0.1UF-KEB 50V
C038	0800048R	EL 100UF-M 10V
C039	0800015R	EL 10UF-M 16V
C040	0800074N	EL 470UF-M 16V
C041	0880057R	PF 0.1UF-KEB 50V
C042	0800003R	EL 1.0UF-M 50V
C043	0800047R	EL 100UF-M 6.3V
C044	0880057R	PF 0.1UF-KEB 50V
C045	0880057R	PF 0.1UF-KEB 50V
C046	0880048R	PF 0.022UF-KEB 50V
C052	0880044R	PF 0.01UF-KEB 50V
C053	0880057R	PF 0.1UF-KEB 50V
C054	0800049R	EL 100UF-M 16V
C056	0800005R	EL 2.2UF-M 50V
C057	0800003R	EL 1.0UF-M 50V
C058	0880057R	PF 0.1UF-KEB 50V
C059	0800049R	EL 100UF-M 16V
C061	0880057R	PF 0.1UF-KEB 50V
C070	0800015R	EL 10UF-M 16V
C101	0800049R	EL 100UF-M 16V
C102	0800049R	EL 100UF-M 16V
C103	0880057R	PF 0.1UF-KEB 50V
C104	0800079N	EL 102M6R3WHLT-SME
C105	0800082N	EL 1000UF-MB16V(SME)
C106	0800079N	EL 102M6R3WHLT-SME
C107	0880057R	PF 0.1UF-KEB 50V
C108	0800082N	EL 1000UF-MB16V(SME)
C109	0800082N	EL 1000UF-MB16V(SME)
C110	0800015R	EL 10UF-M 16V
C111	0800049R	EL 100UF-M 16V
C3A2	0880057R	PF 0.1UF-KEB 50V
C304	0800015R	EL 10UF-M 16V
C305	0800007R	EL 3.3UF-M 50V
C306	0244171R	CD 0.01UF-Z F 50V TAPE
C307	0244171R	CD 0.01UF-Z F 50V TAPE

REPLACEMENT PARTS LIST

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
C308	0244171R	CD 0.01UF-Z F 50V TAPE	C5E3	0890071R	CD 56PF-J 50V
C309	0800015R	EL 10UF-M 16V	C5E5	0880044R	PF 0.01UF-KEB 50V
C311	0880033R	PF 0.0015UF-KEB50V	C5E6	0880044R	PF 0.01UF-KEB 50V
C312	0880046R	PF 0.015UF-K 50V	C5E7	0800049R	EL 100UF-M 16V
C313	0800003R	EL 1.0UF-M 50V	C501	0244171R	CD 0.01UF-Z F 50V TAPE
C314	0800003R	EL 1.0UF-M 50V	C502	0800058R	EL 220UF-M 16V
C315	0800049R	EL 100UF-M 16V	C503	0800001R	EL 0.47UF-M 50V (SME)
C316	0244171R	CD 0.01UF-Z F 50V TAPE	C504	0244171R	CD 0.01UF-Z F 50V TAPE
C317	0800058R	EL 220UF-M 16V	C505	0890116R	CD 15PF-J CH 50V
C318	0800003R	EL 1.0UF-M 50V	C506	0880044R	PF 0.01UF-KEB 50V
C319	0244171R	CD 0.01UF-Z F 50V TAPE	C507	0244171R	CD 0.01UF-Z F 50V TAPE
C320	0244171R	CD 0.01UF-Z F 50V TAPE	C508	0244171R	CD 0.01UF-Z F 50V TAPE
C321	0244171R	CD 0.01UF-Z F 50V TAPE	C509	0244171R	CD 0.01UF-Z F 50V TAPE
C322	0244171R	CD 0.01UF-Z F 50V TAPE	C510	0244171R	CD 0.01UF-Z F 50V TAPE
C323	0800003R	EL 1.0UF-M 50V	C511	0244171R	CD 0.01UF-Z F 50V TAPE
C324	0800003R	EL 1.0UF-M 50V	C512	0800015R	EL 10UF-M 16V
C325	0800005R	EL 2.2UF-M 50V	C513	0244171R	CD 0.01UF-Z F 50V TAPE
C326	0800003R	EL 1.0UF-M 50V	C516	0800041R	EL 47UF-M 16V
C327	0800003R	EL 1.0UF-M 50V	C517	0800048R	EL 100UF-M 10V
C328	0880037R	PF 0.0033UF-KEB50V	C518	0800015R	EL 10UF-M 16V
C329	0890079R	CD 270PF-K 50V	C530	0800049R	EL 100UF-M 16V
C401	0800015R	EL 10UF-M 16V	C531	0276717R	PF 0.1UF-J 50V (TF TYP E)
C402	0284623R	EL 1UF-SME(BP) 50V	C532	0800049R	EL 100UF-M 16V
C403	0284623R	EL 1UF-SME(BP) 50V	C533	0880016R	PF FILM 0.1UF 50V
C404	0800003R	EL 1.0UF-M 50V	C534	0800009R	EL 4.7UF-M 25V
C405	0800003R	EL 1.0UF-M 50V	C603	0800345R	EL 330UF-M(SMG 25V)
C406	0890087R	CD 1000PF-K 50V	C604	AN00062R	PF 103UF 50V
C407	0890087R	CD 1000PF-K 50V	C606	0298261R	TA 1MF-J 35V
C408	0800042R	EL 47UF-M 25V	C607	0284446R	EL1UF-M 50V
C409	0800042R	EL 47UF-M 25V	C608	0800368F	EL 2200UF-M 25V
C410	0800051R	EL 100UF-M 25V	C609	0800347N	EL330UF-M(SMG) 50V
C411	0800003R	EL 1.0UF-M 50V	C610	0800326R	EL100UF-M 16V
C412	0800003R	EL 1.0UF-M 50V	C611	0800347N	EL330UF-M(SMG) 50V
C413	0800051R	EL 100UF-M 25V	C612	0880051R	PF 0.033UF-KEB 50V
C414	0800041R	EL 47UF-M 16V	C613	AN00062R	PF 103UF 50V
C415	0880057R	PF 0.1UF-KEB 50V	C614	0279859F	PF 0.1UF-K 100V
C416	0253934F	EL 2200UF-M 35V	C617	0284446R	EL1UF-M 50V
C417	0880057R	PF 0.1UF-KEB 50V	C618	0284449R	EL4.7UF-KMF 50V
C418	0880057R	PF 0.1UF-KEB 50V	C619	AN00062R	PFD 103UF 50V
C419	0253934F	EL 2200UF-M 35V	C620	0800291R	EL10UF-M(SMG) 16V
C420	0253934F	EL 2200UF-M 35V	C622	0800041R	EL 47UF-M 16V
C421	0880062R	PF 0.22UF-KEB 50V	C623	0800041R	EL 47UF-M 16V
C422	0258616	EL 2.2UF-M 50V	C624	0244109R	CD 4700PF-KB 50V
C423	0258616	EL 2.2UF-M 50V	C701	AN00062R	PF 103UF 50V
C424	0880057R	PF 0.1UF-KEB 50V	C702	0243507R	CD 330PF-K 500V TAPE
C426	0880044R	PF 0.01UF-KEB 50V	C703	0244501R	CD 1000PF-K 500V
C427	0880044R	PF 0.01UF-KEB 50V	C704	0259153F	EL 220UF (HR) 160V
C428	0880057R	PF 0.1UF-KEB 50V	C705	0299926F	PF 0.1UF-K 200V
C429	0800015R	EL 10UF-M 16V	C706	0890028M	CD 330PF-K B 50V
C5A2	0880053R	PF 0.047UF-KEB 50V (AP63B ONLY)	⚠C708	0262414F	PP 3300PF 1800V
C5A3	0880053R	PF 0.047UF-KEB 50V (AP63B ONLY)	⚠C709	0262426F	PF 0.0091UF 1.8KV
C5A4	0800015R	EL 10UF-M 16V (AP63B ONLY)	C710	0299931F	PP 0.27UF-K 200V
C5A5	0800015R	EL 10UF-M 16V (AP63B ONLY)	C711	0299931F	PP 0.27UF-K 200V
C5A6	0800041R	EL 47UF-M 16V (AP63B ONLY)	⚠C715	0299720F	PP 0.015UF-J 6
C5A8	0800075F	EL 470UF-M 25V	C717	0259471	PP 6.8UF-M (BP) 50V
C5A9	0880057R	PF 0.1UF-KEB 50V	C718	0299636F	PF 0.068UF-J 1600V
C5C1	0880057R	PF 0.1UF-KEB 50V	C720	0243503R	CD 150PF-K B 500V
C5C2	0800049R	EL 100UF-M 16V	C721	0253983F	EL 33UF-M 350V
C5C3	0880057R	PF 0.1UF-KEB 50V	C722	0800329R	EL100UF-M(SMG) 50V
C5C4	0800075F	EL 470UF-M 25V	C723	0880057R	PF 0.1UF-KEB 50V
C5C5	0880057R	PF 0.1UF-KEB 50V	C724	0890087R	CD 1000PF-K 50V
C5C6	0880057R	PF 0.1UF-KEB 50V	C725	0800279R	EL 1.0UF-M(SMG) 50V
C5C7	0800075F	EL 470UF-M 25V	C726	0244109R	CD 4700PF-KB 50V
C5C8	0880057R	PF 0.1UF-KEB 50V	C727	0880048R	PF 0.022UF-KEB 50V

REPLACEMENT PARTS LIST

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SYMBOL NO.	PART NO.	PART DESCRIPTION
C728	0890089R	CD 1500PF-K 50V
C729	0800282R	EL 2.2UF-M(SMG) 50V
C730	0284634R	EL 4.7UF-M 50V
C731	0244501R	CD 1000PF-K 500V
C732	0243508R	CD 390PF-K 500V
C735	0243511R	CD 680PF-K 500V TAPE
C738	0243503R	CD 150PF-K B 500V
C739	0243511R	CD 680PF-K 500V TAPE
C740	0890084R	CD 560PF-K 50V
⚠C741	0246348	CD 220PF-2KV
C804	0244889	CD 2200PF +-10% 2KV
C805	0800326	EL 100MF 16V
C807	0244139	CD 1000PF +-10% 50V
C808	0244139	CD 1000PF +-10% 50V
C810	0800326	EL 100MF 16V
C831	0257543	EL 3.3MF 315V
C834	0244889	CD 2200PF +-10% 2KV
C835	0800326	EL 100MF 16V
C837	0244139	CD 1000PF +-10% 50V
C838	0244139	CD 1000PF +-10% 50V
C864	0244889	CD 2200PF +-10% 2KV
C865	0800326	EL 100MF 16V
C867	0244139	CD 1000PF +-10% 50V
C868	0890086	CD 820PF +-10% 50V
⚠C901	AN00148S	PF 0.22UF250V
⚠C902	AN00144S	PF 0.1UF250V
C904	0248593F	CD 4700PF-Z 250V
C906	0248593F	CD 4700PF-Z 250V
C907	0259167	EL 820UF (HR) 200V
C908	0259167	EL 820UF (HR) 200V
C911	0890087R	CD 1000PF-K 50V
C912	0800059R	EL 220UF-M 25V
C913	0299981F	PF 0.01UF-J 630V
C914	0880044R	PF 0.01UF-KEB 50V
C915	0880037R	PF 0.0033UF-KEB50V
C916	0880031R	PF.1000PF-K 50V
C917	0800286R	EL 4.7UF-M(SMG) 25V
C918	0880057R	PF 0.1UF-KEB 50V
C920	0285221	EL 1000UF-M 35V
C921	0285221	EL 1000UF-M 35V
C922	0285221	EL 1000UF-M 35V
C924	0285224	EL 2200UF-M 25V
C925	0285224	EL 2200UF-M 25V
C926	0258697	EL 470UF (HR) 160V
C927	0880044R	PF 0.01UF-KEB 50V
C928	0244105R	CD 2200PF-K 50V TAPE
C930	0284436R	EL 100UF-M 35V
C931	0284436R	EL 100UF-M 35V
C933	0800326R	EL100UF-M 16V
C935	0284436R	EL 100UF-M 35V
C936	0284405R	EL 220UF-M 16V
C937	0284405R	EL 220UF-M 16V
C939	0284436R	EL 100UF-M 35V
C942	0800326R	EL100UF-M 16V
C943	0800279R	EL 1.0UF-M(SMG) 50V
C944	0800317R	EL47UF-M(SMG) 16V
C945	0284647R	EL 22UF-SME(BP) 16V
C947	0258121R	EL 2.2UF-M 100V
C954	0800363F	EL SMG1000UF-M 35V
C955	0800317R	EL 47UF-M(SMG) 16V
C956	0800082F	EL 1000UF-M 16V
C957	0800331R	EL 100UF-M 63V
C958	0800331R	EL 100UF-M 63V
C960	0880057R	PF 0.1UF-KEB 50V

SYMBOL NO.	PART NO.	PART DESCRIPTION
C967	0880198R	PF 0.22UF-J 50V
C968	0880198R	PF 0.22UF-J 50V
C969	0880198R	PF 0.22UF-J 50V
C972	0800291R	EL10UF-M(SMG) 16V
C973	0800083F	EL1000UF-M 25V
C974	0800326	EL100UF-M 16V
		DIODES
DA01	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DA02	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DA03	2348031M	DI MTZ-J2.7ATA
DA04	2348031M	DI MTZ-J2.7ATA
DA05	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DA06	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DA07	2348031M	DI MTZ-J2.7ATA
DA08	2348031M	DI MTZ-J2.7ATA
DA09	2348212M	DI MTZ-J15BTA
DA10	2348212M	DI MTZ-J15BTA
DA11	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DA12	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DA70	2348212M	DI MTZ-J15BTA
DA71	2348212M	DI MTZ-J15BTA
DC03	2348212M	DI MTZ-J15BTA
DE01	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DE02	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DE03	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DE04	CH00151M	DI DSM1SD2(200V)TAPE
DE05	CH00151M	DI DSM1SD2(200V)TAPE
DE06	CH00151M	DI DSM1SD2(200V)TAPE
DE07	CH00151M	DI DSM1SD2(200V)TAPE
DF01	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DF02	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DF03	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DF04	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DF05	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DF06	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DG01	2348103M	ZD MTZJ-5.1C TA
DK03	2339551M	DI ED14(V1) SI 5MA 45
DK04	CH00172M	DI DFM1SD2(200V)TAPE
DK05	CH00172M	DI DFM1SD2(200V)TAPE
DK06	2334324M	ZD RD36E TAPE (B3) SI 500MW
DK07	2334324M	ZD RD36E TAPE (B3) SI 500MW
DK08	2334324M	ZD RD36E TAPE (B3) SI 500MW
DK09	2334324M	ZD RD36E TAPE (B3) SI 500MW
DK10	2334324M	ZD RD36E TAPE (B3) SI 500MW
DK11	2334324M	ZD RD36E TAPE (B3) SI 500MW
DK12	2334324M	ZD RD36E TAPE (B3) SI 500MW
DK13	2334324M	ZD RD36E TAPE (B3) SI 500MW
DK14	2334324M	ZD RD36E TAPE (B3) SI 500MW
DK15	2334324M	ZD RD36E TAPE (B3) SI 500MW
DK16	2334324M	ZD RD36E TAPE (B3) SI 500MW
DK17	2334324M	ZD RD36E TAPE (B3) SI 500MW
DK19	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DK23	2331154M	ZD HZ-12 (A1-3 B1-3.TA) SI 200MA
DK24	2331154M	ZD HZ-12 (A1-3 B1-3.TA) SI 200MA
DK25	2331154M	ZD HZ-12 (A1-3 B1-3.TA) SI 200MA
DK26	2331154M	ZD HZ-12 (A1-3 B1-3.TA) SI 200MA
DK27	2331154M	ZD HZ-12 (A1-3 B1-3.TA) SI 200MA
DK28	2331154M	ZD HZ-12 (A1-3 B1-3.TA) SI 200MA
DK32	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DK39	2339551M	DI ED14(V1) SI 5MA 45
DK40	2331154M	ZD HZ-12 (A1-3 B1-3.TA) SI 200MA
DK50	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC

REPLACEMENT PARTS LIST

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SYMBOL NO.	PART NO.	PART DESCRIPTION
DL01	2348141M	ZD MTZJ-7.5A TA
DL02	2348141M	ZD MTZJ-7.5A TA
DL03	2348141M	ZD MTZJ-7.5A TA
DL04	2348141M	ZD MTZJ-7.5A TA
DL05	2348141M	ZD MTZJ-7.5A TA
DL06	2348141M	ZD MTZJ-7.5A TA
DL07	2348141M	ZD MTZJ-7.5A TA
DL08	2348141M	ZD MTZJ-7.5A TA
DL10	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DL11	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DL12	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DL13	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DL14	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DL15	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DL16	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DL17	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DL28	2331827M	ZD HZ-9 TAPE (C1) SI 500MW
DM01	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DM02	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DM03	CH00231	LED SLH-56VC3F
DM04	2348212M	DI MTZ-J15BTA
DN01	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DN02	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DN03	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DN04	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DN05	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DN06	2348071M	ZD MTZJ-3.9A TA
DN07	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DN08	CH00151M	DI DSM1SD2(200V)TAPE
DN09	2331849M	ZD HZ12C3 (TA) SI 500MW
DN10	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DS01	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DS02	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DS03	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DS04	2348103M	ZD MTZJ-5.1C TA
DS05	CH00151M	DI DSM1SD2(200V)TAPE
DS06	CH00151M	DI DSM1SD2(200V)TAPE
DS07	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DS08	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DS11	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DS12	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DS14	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DS15	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DS24	2348242M	DI MTZ-J20BTA
DX01	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC (AP63 ONLY)
DY01	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DY02	2348212M	DI MTZ-J15BTA
DY03	2348212M	DI MTZ-J15BTA
DY04	2348212M	DI MTZ-J15BTA
DY05	2348212M	DI MTZ-J15BTA
DY50	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
DY71	2348212M	DI MTZ-J15BTA
D005	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D012	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D013	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D014	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D015	2331827M	ZD HZ-9 TAPE (C1) SI 500MW
D020	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D022	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D023	2348103M	ZD MTZJ-5.1C TA
D024	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D025	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D026	2348212M	DI MTZ-J15BTA
D027	2348212M	DI MTZ-J15BTA
D028	2348212M	DI MTZ-J15BTA
D029	2348212M	DI MTZ-J15BTA
D030	2348212M	DI MTZ-J15BTA
D031	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D033	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D034	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D040	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D041	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D042	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D043	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D044	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D101	2348212M	DI MTZ-J15BTA
D103	2335991M	ZD HZ-T33 (02 TP)
D104	2348123M	ZD MTZJ-6.2C TA
D105	2335991M	ZD HZ-T33 (02 TP)
D106	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D107	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D3A1	2334324M	ZD RD36E TAPE (B3) SI 500MW
D301	2339867M	ZD HZS-9-C1 TAPE (SI.200MA)
D302	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D303	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D304	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D305	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D306	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D307	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D308	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D309	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D310	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D311	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D313	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D314	2348103M	ZD MTZJ-5.1C TA
D401	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D402	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D404	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D405	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D406	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D407	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D5A3	CH00151M	DI DSM1SD2(200V)TAPE
D5A5	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D5A6	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D502	2331827M	ZD HZ-9 TAPE (C1) SI 500MW
D503	2331827M	ZD HZ-9 TAPE (C1) SI 500MW
D504	2331827M	ZD HZ-9 TAPE (C1) SI 500MW
D505	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D506	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D507	2348103M	ZD MTZJ-5.1C TA
D508	2331827M	ZD HZ-9 TAPE (C1) SI 500MW
D509	2348103M	ZD MTZJ-5.1C TA
D601	2334243M	ZD RD16E (B2 T2/TP/TA) SI 10MA 1
D602	2331154M	ZD HZ-12 (A1-3 B1-3.TA) SI 200MA
D603	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D604	2331807M	ZD HZ-6 TAPE (C1) SI 500MW
D605	CH00151M	DI DSM1SD2(200V)TAPE
D606	CH00151M	DI DSM1SD2(200V)TAPE
D607	CH00151M	DI DSM1SD2(200V)TAPE
D608	CH00031M	DI AU02V1(280V)
D609	2334305M	ZD RD30E (B4 T2/TP/TA) SI 5MA 30
D610	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D611	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D612	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D614	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D615	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D616	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D620	CH00151M	DI DSM1SD2(200V)TAPE

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SYMBOL NO.	PART NO.	PART DESCRIPTION
D622	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D701	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
⚠D702	2348511	DI RS3FS
⚠D703	2359371	DI S3L60 SI
⚠D704	2359371	DI S3L60 SI
D705	CH00041M	DI ES1FV1 (1500V)
D706	CH00041M	DI ES1FV1 (1500V)
⚠D708	CH00031M	DI AU02V1(280V)
⚠D709	CH00031M	DI AU02V1(280V)
⚠D710	2335042M	ZD HZ-22 (2L TP) SI 200MA
D711	2339612M	ZD HZS-3 TA (BLL) SI 200MA
D712	CH00151M	DI DSM1SD2(200V)TAPE
D713	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D714	CH00172M	DI DFM1SD2(200V)TAPE
D715	2348203M	ZD MTZJ-13C TA
D716	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D717	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D718	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D719	CH00172M	DI DFM1SD2(200V)TAPE
D801	2331827	ZD HZ-9 (C1)
D802	23383211	DI 1SS270
D805	23383211	DI 1SS270
D831	2331827	ZD HZ-9 (C1)
D832	23383211	DI 1SS270
D833	23383211	DI 1SS270
D834	2331827	ZD HZ-9 (C1)
D861	2331827	ZD HZ-9 (C1)
D862	23383211	DI 1SS270
D863	23383211	DI 1SS270
D864	2331827	ZD HZ-9 (C1)
⚠D901	2342061	DI D3SB(A)60.
D902	CH00172M	DI DFM1SD2(200V)TAPE
D903	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D904	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D905	CH00172M	DI DFM1SD2(200V)TAPE
D906	2334304M	ZD RD30E (B3 T2/TP/TA) SI 5MA 3
D907	2331827M	ZD HZ-9 TAPE (C1)SI 500MW
D909	CH00151M	DI DSM1SD2(200V)TAPE
D912	2348202M	ZD MTZJ-13B TA
D913	2359401	DI FMP-G12S
D914	2359401	DI FMP-G12S
D915	2359401	DI FMP-G12S
D916	2349861	DI FMU-G16S
D917	2359401	DI FMP-G12S
D918	2359401	DI FMP-G12S
D920	CH00151M	DI DSM1SD2(200V)TAPE
D921	2339222M	ZD HZS27-2L
D922	2348283M	ZD MTZJ-30C TA
D923	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D924	2348141M	ZD MTZJ-7.5A TA
D925	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D926	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D927	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D928	2348213M	ZD MTZJ-15C TA
D930	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D931	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
⚠D932	2348283M	ZD MTZJ-30C TA
D933	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
⚠D934	2339042M	ZD HZS7A2L TAPE
D935	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D936	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D937	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D938	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D939	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC

SYMBOL NO.	PART NO.	PART DESCRIPTION
D940	2348304M	ZD MTZJ-36D TA
D941	CH00172M	DI DFM1SD2(200V)TAPE
D942	CH00172M	DI DFM1SD2(200V)TAPE
D943	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D944	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D945	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D946	CH00151M	DI DSM1SD2(200V)TAPE
D947	CH00151M	DI DSM1SD2(200V)TAPE
D948	CH00151M	DI DSM1SD2(200V)TAPE
D949	CH00151M	DI DSM1SD2(200V)TAPE
D950	CH00182R	DI (SLZ-381C-06-T1)
D951	CH00182R	DI (SLZ-381C-06-T1)
D952	CH00182R	DI (SLZ-381C-06-T1)
D953	CH00182R	DI (SLZ-381C-06-T1)
D954	CH00182R	SLZ-381C-06-T1)
D955	2331785M	ZD HZ-4 TAPE (B2) SI 500MW
D956	2348313M	ZD MTZJ-39C TA
D957	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D958	2398611M	DI 1SS254 TAPE (35V) I 4NSEC
D959	CH00172M	DI DFM1SD2(200V)TAPE
D968	2348213M	ZD MTZJ-15C TA
D970	2348193M	ZD MTZJ-12C TA
D971	2348213M	ZD MTZJ-15C TA
D972	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D973	2331785M	ZD HZ-4 TAPE (B2) SI 500MW
D974	2334304M	ZD RD30E (B3 T2/TP/TA) SI 5MA 3
D975	CH00183R	DI (SLZ-981C-06-T1)
D976	2348141M	ZD MTZJ-7.5A TA
D977	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D978	2348264M	ZD MTZJ-24D TA
D979	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D980	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
D981	2398611M	DI 1SS254 TAPE (35V) SI 4NSEC
		FUSES
⚠F902	2722358	FUSE AC 5A
⚠F903	FN00071R	FUSE DC 5A UL
⚠F905	2722389M	FUSE DC 4A
⚠F906	2722353	FUSE AC 1.6A
		COMPOUND COMPONENTS
⚠EFPK	AZ00003	CRX FOCUS PACK
HM01	2574762	R/C MODULE SPS-409-1K
H001	2791754R	CONDENSER WITH 3 TERMINAL 100PF
H002	2791754R	CONDENSER WITH 3 TERMINAL 100PF
H003	2791754R	CONDENSER WITH 3 TERMINAL 100PF
H004	2791754R	CONDENSER WITH 3 TERMINAL 100PF
H005	2791754R	CONDENSER WITH 3 TERMINAL 100PF
H006	2791754R	CONDENSER WITH 3 TERMINAL 100PF
⚠H901	2793312	CP-EXN-471P365L
H902	2793312	CP-EXN-471P365L
UKDG	CS00021	DIGI-CON.HC2061 ASY
U002	HP00202	PINP UNIT KC-021 (SX MODELS ONLY)
U002	HP00093	PINP UNIT KC-010S (UX MODELS ONLY))
U101	HC00221	BTF-WB451
U102	2429691	FE TUNER V8-A68FT

REPLACEMENT PARTS LIST

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SYMBOL NO.	PART NO.	PART DESCRIPTION
		IC'S
IA02	2366301	IC UPD4052BC
IA03	CP02601	AN5285K
IA04	2362602	IC UPC4558
IA05	2000361	IC M51132L
IG01	CP02771U	GRAPHICEQULIZER IC
IG02	2362602	IC UPC4558
IG03	2362602	IC UPC4558
IG04	2362602	IC UPC4558
IG05	2362602	IC UPC4558
IG06	2362602	IC UPC4558
IG07	2362602	IC UPC4558
IG08	2362602	IC UPC4558
IG09	2362602	IC UPC4558
IG10	2362602	IC UPC4558
IK02	2003421	IC UPC7805AHF
IK04	2003191	IC STK4274
IK05	2003191	IC STK4274
IK06	2003191	IC STK4274
IK08	CP01631R	ICL-PST9142
IS01	CP00801U	LA2785
IS02	2362602	IC UPC4558
IS03	CP00791U	LV1010N
IS04	2362602	IC UPC4558
IS05	2020001	IC TDA9860
IS08	2362602	IC UPC4558
IS09	2362651	IC HD14053B
IS10	2020001	IC TDA9860
IS11	2004751	IC TA8200AH
IS12	2004751	IC TA8200AH
IX01	CP01081U	DIGITAL MONOLITHIC IC (TC9089AN) (AP63 ONLY)
IX02	CP00121U	ANALOG MONOLITHIC IC (MM1093N) (AP63 ONLY)
IY01	2020452	ANALOG MONOLITHIC IC (CXA1545AS)
I001	CP02793	MN1876476-HHT (AP63 ONLY)
I001	CP02795	MN1876476-HHX (AP63B ONLY)
I002	CP00822	DIGITAL MONOLITHIC IC M6M80042P
I003	2366301	IC UPD4052BC
I004	CP00822	DIGITAL MONOLITHIC IC M6M80042P
I006	CP00761	ANALOG MONOLITHIC IC (MM1231XD)
I007	2000541	IC M51951BSL
I401	2004751	IC TA8200AH
I5A1	2020341	IC MM1111XS (AP63B ONLY)
I5A2	2003421	IC UPC7805AHF
I5A3	2003421	IC UPC7805AHF
I5A4	2004665	IC PQ09RF21
I501	2020324	ANALOG MONOLITHIC IC (YAT016H)
I502	CP02781	M62399P
I601	2003541	IC LA7838
⚠I901	2373343	IC M6511
⚠I902	2000465	IC PS2501-1 (KC/LC)
⚠I903	2000465	IC PS2501-1 (KC/LC)
⚠I904	2381343	IC (SE115N)
I906	CP03163	ANALOG MONOLITHIC UPC7912AHF
I907	2003424	IC UPC7812AHF
		COILS
LA02	2123763R	RADIAL COIL 101K(TYPE EL0405)
LA03	2123763R	RADIAL COIL 101K(TYPE EL0405)
LA04	2123763R	RADIAL COIL 101K(TYPE EL0405)
LA06	2123763R	RADIAL COIL 101K(TYPE EL0405)
LE01	2123103M	COIL-AXIAL LAL 10UH-K
LE02	2123468M	FERRITE BEADS CORE LEAD 0.8MH
LE03	2123468M	FERRITE BEADS CORE LEAD 0.8MH
LE04	2123468M	FERRITE BEADS CORE LEAD 0.8MH
LG01	2123781R	FILTER COIL 101K
LK01	2123462M	FERRITE BEADS CORE B 2.3UH
LK02	2123462M	FERRITE BEADS CORE B 2.3UH
LK04	2122929M	COIL-AXIAL 1.0UH-M
LK05	2122929M	COIL-AXIAL 1.0UH-M
LK06	2122929M	COIL-AXIAL 1.0UH-M
LK07	2122929M	COIL-AXIAL 1.0UH-M
LK08	2122929M	COIL-AXIAL 1.0UH-M
LK09	2122929M	COIL-AXIAL 1.0UH-M
LK10	2122929M	COIL-AXIAL 1.0UH-M
LK11	2122929M	COIL-AXIAL 1.0UH-M
LL01	2123781R	FILTER COIL 101K
LS01	2123781R	FILTER COIL 101K
LS02	2123781R	FILTER COIL 101K
LS03	2123781R	FILTER COIL 101K
LS05	2123781R	FILTER COIL 101K
LX01	2123105M	LAL02 AXIAL COIL 15UH-K (AP63 ONLY)
LX02	2123116M	COIL-AXIAL 100UH-K (AP63 ONLY)
LX03	2123109M	COIL-AXIAL 33UH-K (AP63 ONLY)
LX04	2123763R	RADIAL COIL 101K(TYPE EL0405) (AP63 ONLY)
LX05	2123763R	RADIAL COIL 101K(TYPE EL0405) (AP63 ONLY)
LX06	2123763R	RADIAL COIL 101K(TYPE EL0405) (AP63 ONLY)
LX07	2123763R	RADIAL COIL 101K(TYPE EL0405) (AP63 ONLY)
LX08	2123763R	RADIAL COIL 101K(TYPE EL0405) (AP63 ONLY)
LX09	2123763R	RADIAL COIL 101K(TYPE EL0405) (AP63 ONLY)
LX10	2123763R	RADIAL COIL 101K(TYPE EL0405) (AP63 ONLY)
LX11	2123109M	COIL-AXIAL 33UH-K (AP63 ONLY)
LY01	2123781R	FILTER COIL 101K
LY03	2123763R	RADIAL COIL 101K(TYPE EL0405)
LY04	2123763R	RADIAL COIL 101K(TYPE EL0405)
LY50	2123116M	COIL-AXIAL 100UH-K
L002	2123781R	FILTER COIL 101K
L003	2123781R	FILTER COIL 101K
L004	2146093	COIL (LC FILTER) FL-160V5R8SS
L101	2123763R	RADIAL COIL 101K(TYPE EL0405)
L102	2123763R	RADIAL COIL 101K(TYPE EL0405)
L103	2123781R	FILTER COIL 101K
L104	2123763R	RADIAL COIL 101K(TYPE EL0405)
L105	2123781R	FILTER COIL 101K
L106	2123781R	FILTER COIL 101K
L107	2123781R	FILTER COIL 101K
L303	2123763R	RADIAL COIL 101K(TYPE EL0405)
L401	2122652M	FERRITE CORE
L5A2	2123105M	LAL02 AXIAL COIL 15UH-K (AP63B ONLY)
L5A3	2123105M	LAL02 AXIAL COIL 15UH-K (AP63B ONLY)
L5A5	2123781R	FILTER COIL 101K (AP63B ONLY)
L5A6	2122952M	COIL-AXIAL 47UHKM BELTING
L5A7	2123763R	RADIAL COIL 101K(TYPE EL0405)
L504	2123763R	RADIAL COIL 101K(TYPE EL0405)
L601	2123461M	FERRITE BEADS B 0.8 MH
L701	BH00212R	FILTER COIL 68UH
L702	2123461M	FERRITE BEADS B 0.8 MH
L703	2123465M	FERRITE BEADS 0.4UH
L704	2123461M	FERRITE BEADS B 0.8 MH
L705	BZ00846	CHOKE COIL 1000UH SL1720
L706	BH00228R	COIL 332K-1T7608A
L707	BH00206R	FILTER COIL 27UH
L708	BH00214R	FILTER COIL 100UH
L709	BH00202R	FILTER COIL 12UH
L710	BZ00318	LINEARITY COIL 50UH-W
L711	BZ00317	LINEARITY COIL 140UH-W
L803	2123763	RADIAL COIL 100MH

REPLACEMENT PARTS LIST

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SYMBOL NO.	PART NO.	PART DESCRIPTION
⚠L901	BZ00571	LINE FILTER 1.0MH
⚠L902	BZ00561	LINE FILTER 3.9MH
⚠L903	BZ00571	LINE FILTER 1.0MH
L904	2122653M	FERRITE CORE 1.65UH TAPE
L907	BH00201R	FILTER COIL 10UH
L908	BH00201R	FILTER COIL 10UH
L909	BH00201R	FILTER COIL 10UH
L912	BH00201R	FILTER COIL 10UH
L913	BH00201R	FILTER COIL 10UH
L916	BH00214R	FILTER COIL 100UH
L917	BH00214R	FILTER COIL 100UH
L918	BH00214R	FILTER COIL 100UH
L923	BH00212R	FILTER COIL 68UH
L924	BH00214R	FILTER COIL 100UH
L925	BH00214R	FILTER COIL 100UH
L926	2161152	FILTER COIL
		TRANSISTORS
QA01	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QA02	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
QA03	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QA04	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
QA05	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QA06	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QA07	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QA09	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QA11	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QA12	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QA70	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QA71	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QA72	2326876R	TRS. DTC124ES TAPE
QA73	2326876R	TRS. DTC124ES TAPE
QA74	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QA75	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QA76	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QA77	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QA78	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
QA79	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
QC01	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QE01	2320598M	TRS. 2SC458 (B TZ/C TZ/D TZ)
QE02	2320598M	TRS. 2SC458 (B TZ/C TZ/D TZ)
QE03	2320598M	TRS. 2SC458 (B TZ/C TZ/D TZ)
QE04	2320598M	TRS. 2SC458 (B TZ/C TZ/D TZ)
QE05	2320598M	TRS. 2SC458 (B TZ/C TZ/D TZ)
QE06	2320647M	TRS. 2SC1213 (C 21 TZ/D 21 TZ) SI 80MHZ4
QE07	2321351M	TRS. 2SA836/844D/E 100MA 200MW 200MHZSI
QE08	2315381	TRS. 2SA1837
QE09	2315391	TRS. 2SC4793
QE10	2320598M	TRS. 2SC458 (B TZ/C TZ/D TZ)
⚠QF01	2314991	TRS. 2SC4630
QF02	2320663M	TRS. 2SC1213A (C)
QF03	2320663M	TRS. 2SC1213A (C)
QF04	2320663M	TRS. 2SC1213A (C)
QF05	2320663M	TRS. 2SC1213A (C)
QF06	2320663M	TRS. 2SC1213A (C)
QF07	2320663M	TRS. 2SC1213A (C)
QF08	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QF09	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QF10	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QF11	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QK01	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QK02	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QK03	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QK04	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QK08	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
QK09	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
QK10	2312172	TRS. 2SD2375 Q/P
QL10	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
QL11	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
QL12	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
QL13	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
QL14	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
QL15	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
QL16	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
QL17	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
QM01	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QM02	2312992	PHOTO TRS. RPT-38PT3F (M)
QN01	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QN02	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QN03	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
QN04	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QN05	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QN06	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
QS17	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QS18	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QS19	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QS20	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QS21	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QS22	2312174	TRS. 2SD2375 (P)
QS23	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QS24	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QX01	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ (AP63 ONLY)
QX02	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ (AP63 ONLY)
QX04	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ (AP63 ONLY)
QX05	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ (AP63 ONLY)
QX06	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ (AP63 ONLY)
QX07	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ (AP63 ONLY)
QX08	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ (AP63 ONLY)
QX09	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ (AP63 ONLY)
QX10	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ (AP63 ONLY)
QX11	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ (AP63 ONLY)
QX12	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ (AP63 ONLY)
QY01	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QY02	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QY03	2321351M	TRS. 2SA836/844D/E 100MA 200MW 200MHZSI
QY04	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QY05	2326876R	TRS. DTC124ES TAPE
QY06	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QY07	2326021M	TRS. 2SC1741S P/R/Q (TP) 250MHZ 30
QY08	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QY50	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
QY51	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QY52	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
QY53	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
QY54	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q001	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q002	2327772M	TRS.2SC3413 TAPE (B/C) SI 200MHZ
Q003	2320647M	TRS. 2SC1213 (C 21 TZ/D 21 TZ) SI 80MHZ4
Q004	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q005	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q006	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
Q007	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q008	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q010	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q011	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q012	2320647M	TRS. 2SC1213 (C 21 TZ/D 21 TZ) SI 80MHZ4
Q013	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ

REPLACEMENT PARTS LIST

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SYMBOL NO.	PART NO.	PART DESCRIPTION
Q014	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
Q015	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q016	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q017	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q018	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q019	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q021	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q022	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
Q023	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
Q024	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q101	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q102	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q103	2320647M	TRS. 2SC1213 (C 21 TZ/D 21 TZ) SI 80MHZ4
Q105	2323524M	TRS. 2SD789 TAPE(C)
Q3A2	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q3A3	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q302	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q303	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q304	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q305	2326021M	TRS. 2SC1741S P/R/Q (TP) 250MHZ 30
Q310	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q311	2326876R	TRS. DTC124ES TAPE
Q312	2326876R	TRS. DTC124ES TAPE
Q313	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q401	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q402	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q403	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q404	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q5A1	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ (AP63B ONLY)
Q5A2	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ (AP63B ONLY)
Q5A3	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q5A4	2326876R	TRS. DTC124ES TAPE
Q5A5	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q5A6	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q501	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
Q502	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q503	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q506	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q601	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q604	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
Q605	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
Q606	2312177	TRS. 2SD2375 (LD) (P)
Q607	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
Q608	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q609	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
Q610	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
Q612	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q613	2320665R	TRS. 2SC1213A(D R) TA
Q701	2326216	TRS. 2SC3116 (S/T)
Q704	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q705	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
Q706	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q707	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
⚠Q777	2315274F	TRS. 2SC4589-05 (1500V)
Q801	2312372F	TRS. 2SC3942
Q802	2320663	TRS. 2SC1213AC SI 80MHZ 400MW
Q803	2320637	TRS. 2SA673C/D SI 80MHZ 400MW
Q804	2320591	TRS. 2SC458B/C SI 230MHZ 200MW
Q831	2312372F	TRS. 2SC3942
Q832	2320663	TRS. 2SC1213AC SI 80MHZ 400MW
Q833	2320637	TRS. 2SA673C/D SI 80MHZ 400MW
Q835	2320591	TRS. 2SC458B/C SI 230MHZ 200MW
Q861	2312372F	TRS. 2SC3942
Q862	2320663	TRS. 2SC1213AC SI 80MHZ 400MW
Q863	2320637	TRS. 2SA673C/D SI 80MHZ 400MW
Q865	2320591	TRS. 2SC458B/C SI 230MHZ 200MW
Q901	2320665R	TRS. 2SC1213A(D R) TA
Q902	2312171	TRS. 2SC3852
⚠Q903	2323782R	THYRISTOR 03P2M(TA)
⚠Q909	2321112M	TRS.2SA778AK(02 TAPE)
Q912	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q913	2320591M	TRS. 2SC458 (B TZ/C TZ) SI 230MHZ
Q914	2320637M	TRS. 2SA673 (C 26TZ/D 26TZ) SI 80MHZ
Q915	2312177	TRS. 2SD2375 (LD) (P)
		RESISTORS
RAA1	0700067M	CF 1/16W 100K-JB
RAA2	0700067M	CF 1/16W 100K-JB
RAA3	0700067M	CF 1/16W 100K-JB
RAA4	0700067M	CF 1/16W 100K-JB
RAA5	0700054M	CF 1/16W 10K-JB
RAA6	0700054M	CF 1/16W 10K-JB
RAA7	0700058M	CF 1/16W 22K-JB
RAA8	0700058M	CF 1/16W 22K-JB
RAA9	0700054M	CF 1/16W 10K-JB
RAC0	0700054M	CF 1/16W 10K-JB
RAC1	0700041M	CF 1/16W 1.0K-JB
RAC2	0700067M	CF 1/16W 100K-JB
RAC3	0700041M	CF 1/16W 1.0K-JB
RAC4	0700041M	CF 1/16W 1.0K-JB
RAC5	0700041M	CF 1/16W 1.0K-JB
RAC6	0700032M	CF 1/16W 220-JB
RAC7	0700041M	CF 1/16W 1.0K-JB
RAC8	0700067M	CF 1/16W 100K-JB
RAC9	0700062M	CF 1/16W 39K-JB
RAD1	0700041M	CF 1/16W 1.0K-JB
RAD2	0700054M	CF 1/16W 10K-JB
RAD3	0700041M	CF 1/16W 1.0K-JB
RAD4	0700062M	CF 1/16W 39K-JB
RAD5	0700041M	CF 1/16W 1.0K-JB
RAD6	0700054M	CF 1/16W 10K-JB
RAD7	0700041M	CF 1/16W 1.0K-JB
RA01	0700051M	CF 1/16W 5.6K-JB
RA02	0700051M	CF 1/16W 5.6K-JB
RA03	0700051M	CF 1/16W 5.6K-JB
RA04	0700051M	CF 1/16W 5.6K-JB
RA05	0700051M	CF 1/16W 5.6K-JB
RA06	0700051M	CF 1/16W 5.6K-JB
RA07	0700051M	CF 1/16W 5.6K-JB
RA08	0700051M	CF 1/16W 5.6K-JB
RA09	0700041M	CF 1/16W 1.0K-JB
RA10	0700041M	CF 1/16W 1.0K-JB
RA11	0700027M	CF 1/16W 100-JB
RA12	0700027M	CF 1/16W 100-JB
RA18	0700062M	CF 1/16W 39K-JB
RA19	0700054M	CF 1/16W 10K-JB
RA20	0700041M	CF 1/16W 1.0K-JB
RA21	0700041M	CF 1/16W 1.0K-JB
RA22	0700034M	CF 1/16W 330-JB
RA23	0700032M	CF 1/16W 220-JB
RA24	0700062M	CF 1/16W 39K-JB
RA25	0700054M	CF 1/16W 10K-JB
RA26	0700041M	CF 1/16W 1.0K-JB
RA27	0700041M	CF 1/16W 1.0K-JB
RA28	0700034M	CF 1/16W 330-JB
RA29	0700032M	CF 1/16W 220-JB
RA30	0700041M	CF 1/16W 1.0K-JB

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SYMBOL NO.	PART NO.	PART DESCRIPTION
RA31	0700067M	CF 1/16W 100K-JB
RA32	0700041M	CF 1/16W 1.0K-JB
RA33	0700067M	CF 1/16W 100K-JB
RA38	0700034M	CF 1/16W 330-JB
RA39	0700032M	CF 1/16W 220-JB
RA44	0700034M	CF 1/16W 330-JB
RA45	0700032M	CF 1/16W 220-JB
RA46	0700041M	CF 1/16W 1.0K-JB
RA47	0700067M	CF 1/16W 100K-JB
RA48	0700041M	CF 1/16W 1.0K-JB
RA49	0700067M	CF 1/16W 100K-JB
RA50	0700041M	CF 1/16W 1.0K-JB
RA51	0700067M	CF 1/16W 100K-JB
RA52	0700041M	CF 1/16W 1.0K-JB
RA53	0700067M	CF 1/16W 100K-JB
RA54	0700041M	CF 1/16W 1.0K-JB
RA55	0700067M	CF 1/16W 100K-JB
RA56	0700041M	CF 1/16W 1.0K-JB
RA57	0700067M	CF 1/16W 100K-JB
RA58	0700041M	CF 1/16W 1.0K-JB
RA59	0700067M	CF 1/16W 100K-JB
RA60	0700041M	CF 1/16W 1.0K-JB
RA61	0700067M	CF 1/16W 100K-JB
RA62	0700041M	CF 1/16W 1.0K-JB
RA63	0700041M	CF 1/16W 1.0K-JB
RA64	0100123M	CF 1/8W 270K-JB
RA65	0100123M	CF 1/8W 270K-JB
RA66	0100123M	CF 1/8W 270K-JB
RA67	0100123M	CF 1/8W 270K-JB
RA68	0179561M	MG 2.2M-J TAPE
RA69	0700049M	CF 1/16W 4.7K-JB
RA70	0700056M	CF 1/16W 15K-JB
RA71	0100041M	CF 1/8W 100-JB
RA72	0700041M	CF 1/16W 1.0K-JB
RA73	0700041M	CF 1/16W 1.0K-JB
RA74	0700064M	CF 1/16W 56K-JB
RA75	0700045M	CF 1/16W 2.2K-JB
RA76	0100123M	CF 1/8W 270K-JB
RA77	0700047M	CF 1/16W 3.3K-JB
RA78	0700064M	CF 1/16W 56K-JB
RA79	0100123M	CF 1/8W 270K-JB
RA80	0700041M	CF 1/16W 1.0K-JB
RA81	0700041M	CF 1/16W 1.0K-JB
RA82	0100041M	CF 1/8W 100-JB
RA83	0700041M	CF 1/16W 1.0K-JB
RA84	0700067M	CF 1/16W 100K-JB
RA85	0700054M	CF 1/16W 10K-JB
RA86	0700041M	CF 1/16W 1.0K-JB
RA89	0700054M	CF 1/16W 10K-JB
RA90	0700054M	CF 1/16W 10K-JB
RA91	0700041M	CF 1/16W 1.0K-JB
RA92	0700067M	CF 1/16W 100K-JB
RA93	0700054M	CF 1/16W 10K-JB
RA94	0700041M	CF 1/16W 1.0K-JB
RC01	0700027M	CF 1/16W 100-JB
RC02	0700027M	CF 1/16W 100-JB
RC04	0700027M	CF 1/16W 100-JB (AP63 ONLY)
RC05	0700032M	CF 1/16W 220-JB
RC06	0700041M	CF 1/16W 1.0K-JB
RC16	0100038M	CF 1/8W 75-JB
RC17	0700027M	CF 1/16W 100-JB
RC71	0187038M	CF 1/16W 75-J
RE01	0110135S	MF 390-JS
RE02	0700067M	CF 1/16W 100K-JB
RE03	0700059M	CF 1/16W 27K-JB
RE04	0700035M	CF 1/16W 390-JB
RE05	0700042M	CF 1/16W 1.2K-JB
RE06	0700036M	CF 1/16W 470-JB
RE07	0700067M	CF 1/16W 100K-JB
RE08	0700059M	CF 1/16W 27K-JB
RE09	0700042M	CF 1/16W 1.2K-JB
RE10	0700033M	CF 1/16W 270-JB
RE11	0700033M	CF 1/16W 270-JB
RE12	0700045M	CF 1/16W 2.2K-JB
RE13	0700058M	CF 1/16W 22K-JB
RE14	0700067M	CF 1/16W 100K-JB
RE15	0700046M	CF 1/16W 2.7K-JB
RE16	0113742M	CF 1/2W 470-JB
RE17	0700061M	CF 1/16W 33K-JB
RE18	0700036M	CF 1/16W 470-JB
RE19	0700067M	CF 1/16W 100K-JB
RE20	0700054M	CF 1/16W 10K-JB
RE21	0100065M	CF 1/8W 1K-JB
RE22	0700025M	CF 1/16W 68-J
RE23	0113701M	CF SRD1/2P-B 10-J
RE24	0100039M	CF 1/8W 82-JB
RE25	0114165M	CF SRD 1/4 PF 1.5K-J
RE26	0114143M	CF 1/4W 330-JB
RE27	0114221M	CF 1/4 PB 68K-J
RE28	0114221M	CF 1/4 PB 68K-J
RE29	0113776M	CF SRD1/2P-B 12K-J
RE30	0100039M	CF 1/8W 82-JB
RE31	0100069M	CF 1/8W 1.5K-JB
RE32	0100053M	CF 1/8W 330-JB
RE33	0113716M	CF SRD1/2P-B 43-J
RE34	0110229S	MF 220-JS
RE35	0113686M	CF 1/2W 2.7-J
RE36	0113686M	CF 1/2W 2.7-J
RE37	0113716M	CF SRD1/2P-B 43-J
RE38	0110132S	MF 300-JS
RE39	0700054M	CF 1/16W 10K-JB
RE40	0700049M	CF 1/16W 4.7K-JB
RF01	0110279S	MF 27K-JS
RF02	0110279S	MF 27K-JS
RF03	0110279S	MF 27K-JS
RF04	0110279S	MF 27K-JS
RF05	0110279S	MF 27K-JS
RF06	0114213M	CF SRD 1/4 PB 33K-J
RF07	0100065M	CF 1/8W 1K-JB
RF08	0100041M	CF 1/8W 100-JB
RF09	0700035M	CF 1/16W 390-JB
RF10	0700045M	CF 1/16W 2.2K-JB
RF11	0700059M	CF 1/16W 27K-JB
RF12	0700059M	CF 1/16W 27K-JB
RF13	0700048M	CF 1/16W 3.9K-JB
RF14	0700041M	CF 1/16W 1.0K-JB
RF15	0700046M	CF 1/16W 2.7K-JB
RF16	0700049M	CF 1/16W 4.7K-JB
RF17	0700027M	CF 1/16W 100-JB
RF18	0700054M	CF 1/16W 10K-JB
RF19	0700037M	CF 1/16W 560-JB
RF20	0700066M	CF 1/16W 82K-JB
RF21	0700049M	CF 1/16W 4.7K-JB
RF22	0700059M	CF 1/16W 27K-JB
RF23	0700043M	CF 1/16W 1.5K-JB
RF24	0700051M	CF 1/16W 5.6K-JB
RF25	0700038M	CF 1/16W 680-JB
RF26	0187098M	CF 1/16W 24K-JB

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
RF27	0700054M	CF 1/16W 10K-JB	RG50	0700063M	CF 1/16W 47K-JB
RF28	0100113M	CF 1/8W 100K-JB	RG51	0187086M	CF 1/16W 7.5K-JB
RF29	0700063M	CF 1/16W 47K-JB	RG52	0187086M	CF 1/16W 7.5K-JB
RF30	0700046M	CF 1/16W 2.7K-JB	RG53	0700054M	CF 1/16W 10K-JB
RF31	0700041M	CF 1/16W 1.0K-JB	RG54	0700054M	CF 1/16W 10K-JB
RF32	0700052M	CF 1/16W 6.8K-JB	RG55	0114149M	CF SRD 1/4 PF 560-J
RF33	0700058M	CF 1/16W 22K-JB	RG56	0700054M	CF 1/16W 10K-JB
RF34	0700058M	CF 1/16W 22K-JB	RG57	0700047M	CF 1/16W 3.3K-JB
RF35	0700056M	CF 1/16W 15K-JB	RG58	0700054M	CF 1/16W 10K-JB
RF36	0700053M	CF 1/16W 8.2K-JB	RG59	0700047M	CF 1/16W 3.3K-JB
RF37	0700041M	CF 1/16W 1.0K-JB	RKA4	0700052M	CF 1/16W 6.8K-JB
RF38	0700061M	CF 1/16W 33K-JB	RKA5	0700044M	CF 1/16W 1.8K-JB
RF39	0700049M	CF 1/16W 4.7K-JB	RKA6	0700041M	CF 1/16W 1.0K-JB
RF40	0700054M	CF 1/16W 10K-JB	RKA7	0700041M	CF 1/16W 1.0K-JB
RF41	0700054M	CF 1/16W 10K-JB	RK01	0700063M	CF 1/16W 47K-JB
RG01	0179536M	MG 1M J TAPE	RK02	0700049M	CF 1/16W 4.7K-JB
RG02	0179536M	MG 1M J TAPE	RK03	0100125M	CF 1/8W 330K-JB
RG03	0179536M	MG 1M J TAPE	RK05	0700054M	CF 1/16W 10K-JB
RG04	0179536M	MG 1M J TAPE	RK06	0700054M	CF 1/16W 10K-JB
RG05	0179536M	MG 1M J TAPE	RK07	0700027M	CF 1/16W 100-JB
RG06	0179536M	MG 1M J TAPE	RK08	0700027M	CF 1/16W 100-JB
RG07	0179536M	MG 1M J TAPE	RK09	0700027M	CF 1/16W 100-JB
RG08	0700041M	CF 1/16W 1.0K-JB	RK10	0700041M	CF 1/16W 1.0K-JB
RG09	0700041M	CF 1/16W 1.0K-JB	RK11	0700041M	CF 1/16W 1.0K-JB
RG10	0179536M	MG 1M J TAPE	RK12	0700041M	CF 1/16W 1.0K-JB
RG11	0179536M	MG 1M J TAPE	RK13	0700063M	CF 1/16W 47K-JB
RG12	0179536M	MG 1M J TAPE	RK14	0110229S	MF 220-JS
RG13	0179536M	MG 1M J TAPE	RK15	0113694M	CF 1/2W 5.6-J
RG14	0179536M	MG 1M J TAPE	RK16	0113694M	CF 1/2W 5.6-J
RG15	0179536M	MG 1M J TAPE	RK17	0100077M	CF 1/8W 3.3K-JB
RG16	0179536M	MG 1M J TAPE	RK18	0700063M	CF 1/16W 47K-JB
RG17	0700041M	CF 1/16W 1.0K-JB	RK19	0110225S	MG 150-JS 2W
RG18	0700041M	CF 1/16W 1.0K-JB	RK20	0113692M	CF 1/2W 4.7-J
RG19	0700041M	CF 1/16W 1.0K-JB	RK21	0113692M	CF 1/2W 4.7-J
RG20	0700063M	CF 1/16W 47K-JB	RK22	0100077M	CF 1/8W 3.3K-JB
RG21	0700063M	CF 1/16W 47K-JB	RK23	0700063M	CF 1/16W 47K-JB
RG22	0700041M	CF 1/16W 1.0K-JB	RK24	0110229S	MF 220-JS
RG23	0700041M	CF 1/16W 1.0K-JB	RK25	0113698M	CF 1/2W 8.2-J
RG24	0700063M	CF 1/16W 47K-JB	RK26	0113698M	CF 1/2W 8.2-J
RG25	0700063M	CF 1/16W 47K-JB	RK27	0100077M	CF 1/8W 3.3K-JB
RG26	0700041M	CF 1/16W 1.0K-JB	RK28	0700063M	CF 1/16W 47K-JB
RG27	0700041M	CF 1/16W 1.0K-JB	RK29	0110225S	MG 150-JS 2W
RG28	0700063M	CF 1/16W 47K-JB	RK30	0113696M	CF 1/2W 6.8-J
RG29	0700063M	CF 1/16W 47K-JB	RK31	0113696M	CF 1/2W 6.8-J
RG30	0700041M	CF 1/16W 1.0K-JB	RK32	0100077M	CF 1/8W 3.3K-JB
RG31	0700041M	CF 1/16W 1.0K-JB	RK33	0700063M	CF 1/16W 47K-JB
RG32	0700063M	CF 1/16W 47K-JB	RK34	0110229S	MF 220-JS
RG33	0700063M	CF 1/16W 47K-JB	RK35	0113696M	CF 1/2W 6.8-J
RG34	0700041M	CF 1/16W 1.0K-JB	RK36	0113696M	CF 1/2W 6.8-J
RG35	0700041M	CF 1/16W 1.0K-JB	RK37	0100077M	CF 1/8W 3.3K-JB
RG36	0700063M	CF 1/16W 47K-JB	RK38	0100077M	CF 1/8W 3.3K-JB
RG37	0700063M	CF 1/16W 47K-JB	RK39	0700063M	CF 1/16W 47K-JB
RG38	0700041M	CF 1/16W 1.0K-JB	RK40	0110225S	MF 150-JS 2W
RG39	0700041M	CF 1/16W 1.0K-JB	RK41	0113692M	CF 1/2W 4.7-J
RG40	0700063M	CF 1/16W 47K-JB	RK42	0113692M	CF 1/2W 4.7-J
RG41	0700063M	CF 1/16W 47K-JB	RK57	0700041M	CF 1/16W 1.0K-JB
RG42	0700041M	CF 1/16W 1.0K-JB	RK58	0700041M	CF 1/16W 1.0K-JB
RG43	0700041M	CF 1/16W 1.0K-JB	RK79	0700046M	CF 1/16W 2.7K-JB
RG44	0700063M	CF 1/16W 47K-JB	RK80	0700046M	CF 1/16W 2.7K-JB
RG45	0700063M	CF 1/16W 47K-JB	RK81	0700046M	CF 1/16W 2.7K-JB
RG46	0700041M	CF 1/16W 1.0K-JB	RK82	0700046M	CF 1/16W 2.7K-JB
RG47	0187086M	CF 1/16W 7.5K-JB	RK83	0700046M	CF 1/16W 2.7K-JB
RG48	0187086M	CF 1/16W 7.5K-JB	RK84	0700046M	CF 1/16W 2.7K-JB
RG49	0700063M	CF 1/16W 47K-JB	RK85	0700048M	CF 1/16W 3.9K-JB

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
RK86	0700047M	CF 1/16W 3.3K-JB	RN18	0700057M	CF 1/16W 18K-JB
RK89	0700046M	CF 1/16W 2.7K-JB	RN19	0700049M	CF 1/16W 4.7K-JB
RK90	0700052M	CF 1/16W 6.8K-JB	RSA1	0700041M	CF 1/16W 1.0K-JB
RK91	0700054M	CF 1/16W 10K-JB	RSA2	0700041M	CF 1/16W 1.0K-JB
RK94	0100057M	CF 1/8W 470-JB	RSA8	0700063M	CF 1/16W 47K-JB
RK95	0700046M	CF 1/16W 2.7K-JB	RSA9	0700067M	CF 1/16W 100K-JB
RK96	0700046M	CF 1/16W 2.7K-JB	RSC3	0700063M	CF 1/16W 47K-JB
RK97	0700042M	CF 1/16W 1.2K-JB	RSC4	0700054M	CF 1/16W 10K-JB
RL10	0100129M	CF 1/8W 470K-JB	RSC5	0700045M	CF 1/16W 2.2K-JB
RL11	0100129M	CF 1/8W 470K-JB	RSC6	0700045M	CF 1/16W 2.2K-JB
RL12	0100129M	CF 1/8W 470K-JB	RSC7	0700054M	CF 1/16W 10K-JB
RL13	0100129M	CF 1/8W 470K-JB	RSC8	0700045M	CF 1/16W 2.2K-JB
RL14	0100129M	CF 1/8W 470K-JB	RSC9	0700045M	CF 1/16W 2.2K-JB
RL15	0100129M	CF 1/8W 470K-JB	RSE1	0700041M	CF 1/16W 1.0K-JB
RL16	0100129M	CF 1/8W 470K-JB	RSE2	0700054M	CF 1/16W 10K-JB
RL17	0100129M	CF 1/8W 470K-JB	RSE3	0700054M	CF 1/16W 10K-JB
RL20	0100133M	CF 1/8W 680K-JB	RSE4	0700036M	CF 1/16W 470-JB
RL21	0100121M	CF 1/8W 220K-JB	RSE5	0700041M	CF 1/16W 1.0K-JB
RL22	0100133M	CF 1/8W 680K-JB	RSE6	0700058M	CF 1/16W 22K-JB
RL23	0100129M	CF 1/8W 470K-JB	RSE7	0119505G	MF 2.2-J
RL24	0100133M	CF 1/8W 680K-JB	RSE8	0119505G	MF 2.2-J
RL25	0100121M	CF 1/8W 220K-JB	RSE9	0119505G	MF 2.2-J
RL26	0100133M	CF 1/8W 680K-JB	RSF1	0114161M	CF 1/4W 1K-JB
RL27	0100129M	CF 1/8W 470K-JB	RSF2	0114161M	CF 1/4W 1K-JB
RL30	0700027M	CF 1/16W 100-JB	RSF3	0114161M	CF 1/4W 1K-JB
RL31	0700027M	CF 1/16W 100-JB	RSF4	0700065M	CF 1/16W 68K-JB
RL32	0700027M	CF 1/16W 100-JB	RSF5	0700065M	CF 1/16W 68K-JB
RL33	0700027M	CF 1/16W 100-JB	RSF6	0700065M	CF 1/16W 68K-JB
RL34	0700027M	CF 1/16W 100-JB	RSF7	0110337S	MF 3W 470-JS
RL35	0700027M	CF 1/16W 100-JB	RSF8	0700054M	CF 1/16W 10K-JB
RL36	0700027M	CF 1/16W 100-JB	RSF9	0700045M	CF 1/16W 2.2K-JB
RL37	0700027M	CF 1/16W 100-JB	RSG1	0700054M	CF 1/16W 10K-JB
RL38	0700049M	CF 1/16W 4.7K-JB	RSH5	0700054M	CF 1/16W 10K-JB
RM01	0700041M	CF 1/16W 1.0K-JB	RSJ8	0700058M	CF 1/16W 22K-JB
RM02	0700058M	CF 1/16W 22K-JB	RSK1	0700041M	CF 1/16W 1.0K-JB
RM03	0700045M	CF 1/16W 2.2K-JB	RSK2	0700027M	CF 1/16W 100-JB
RM04	0100065M	CF 1/8W 1K-JB	RSK3	0700027M	CF 1/16W 100-JB
RM05	0100065M	CF 1/8W 1K-JB	RSK4	0700047M	CF 1/16W 3.3K-JB
RM06	0700041M	CF 1/16W 1.0K-JB	RSK5	0700054M	CF 1/16W 10K-JB
RM07	0700043M	CF 1/16W 1.5K-JB	RS01	0700041M	CF 1/16W 1.0K-JB
RM08	0700046M	CF 1/16W 2.7K-JB	RS02	0700041M	CF 1/16W 1.0K-JB
RM09	0700049M	CF 1/16W 4.7K-JB	RS03	0700041M	CF 1/16W 1.0K-JB
RM10	0100129M	CF 1/8W 470K-JB	RS04	0700067M	CF 1/16W 100K-JB
RM11	0700041M	CF 1/16W 1.0K-JB	RS05	0700067M	CF 1/16W 100K-JB
RM12	0100125M	CF 1/8W 330K-JB	RS06	0700067M	CF 1/16W 100K-JB
RM13	0114149M	CF SRD 1/4 PF 560-J	RS07	0700067M	CF 1/16W 100K-JB
RM14	0100125M	CF 1/8W 330K-JB	RS08	0700067M	CF 1/16W 100K-JB
RM15	0700054M	CF 1/16W 10K-JB	RS09	0700067M	CF 1/16W 100K-JB
RN01	0700057M	CF 1/16W 18K-JB	RS14	0700041M	CF 1/16W 1.0K-JB
RN02	0700041M	CF 1/16W 1.0K-JB	RS15	0700041M	CF 1/16W 1.0K-JB
RN03	0700041M	CF 1/16W 1.0K-JB	RS16	0179536M	MG 1M J TAPE
RN04	0700067M	CF 1/16W 100K-JB	RS17	0700063M	CF 1/16W 47K-JB
RN05	0700052M	CF 1/16W 6.8K-JB	RS18	0700051M	CF 1/16W 5.6K-JB
RN06	0700051M	CF 1/16W 5.6K-JB	RS19	0700064M	CF 1/16W 56K-JB
RN07	0700054M	CF 1/16W 10K-JB	RS20	0187096M	CF 1/16W 20K-JB
RN08	0700057M	CF 1/16W 18K-JB	RS21	0700062M	CF 1/16W 39K-JB
RN09	0700061M	CF 1/16W 33K-JB	RS22	0700041M	CF 1/16W 1.0K-JB
RN10	0700054M	CF 1/16W 10K-JB	RS23	0700041M	CF 1/16W 1.0K-JB
RN11	0700058M	CF 1/16W 22K-JB	RS24	0700041M	CF 1/16W 1.0K-JB
RN12	0700051M	CF 1/16W 5.6K-JB	RS25	0700058M	CF 1/16W 22K-JB
RN13	0700044M	CF 1/16W 1.8K-JB	RS26	0700058M	CF 1/16W 22K-JB
RN14	0700054M	CF 1/16W 10K-JB	RS27	0700058M	CF 1/16W 22K-JB
RN15	0700058M	CF 1/16W 22K-JB	RS28	0100059M	CF 1/8W 560-JB
RN16	0700064M	CF 1/16W 56K-JB	RS29	0700067M	CF 1/16W 100K-JB

REPLACEMENT PARTS LIST

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SYMBOL NO.	PART NO.	PART DESCRIPTION	SYMBOL NO.	PART NO.	PART DESCRIPTION
RS30	0700067M	CF 1/16W 100K-JB	RX57	0700054M	CF 1/16W 10K-JB (AP63 ONLY)
RS31	0700065M	CF 1/16W 68K-JB	RX58	0100115M	CF 1/8W 120K-JB (AP63 ONLY)
RS32	0700051M	CF 1/16W 5.6K-JB	RY01	0700027M	CF 1/16W 100-JB
RS33	0700063M	CF 1/16W 47K-JB	RY02	0700027M	CF 1/16W 100-JB
RS34	0700051M	CF 1/16W 5.6K-JB	RY03	0700027M	CF 1/16W 100-JB
RS35	0700043M	CF 1/16W 1.5K-JB	RY04	0700041M	CF 1/16W 1.0K-JB
RS36	0700035M	CF 1/16W 390-JB	RY05	0700027M	CF 1/16W 100-JB
RS39	0700054M	CF 1/16W 10K-JB	RY06	0700027M	CF 1/16W 100-JB
RS42	0700041M	CF 1/16W 1.0K-JB	RY07	0700027M	CF 1/16W 100-JB
RS47	0700041M	CF 1/16W 1.0K-JB	RY08	0700041M	CF 1/16W 1.0K-JB
RS96	0700032M	CF 1/16W 220-JB	RY09	0700041M	CF 1/16W 1.0K-JB
RS97	0700052M	CF 1/16W 6.8K-JB	RY10	0700041M	CF 1/16W 1.0K-JB
RS98	0700051M	CF 1/16W 5.6K-JB	RY11	0700041M	CF 1/16W 1.0K-JB
RX01	0700059M	CF 1/16W 27K-JB (AP63 ONLY)	RY12	0700027M	CF 1/16W 100-JB
RX02	0700067M	CF 1/16W 100K-JB (AP63 ONLY)	RY14	0700027M	CF 1/16W 100-JB
RX03	0700027M	CF 1/16W 100-JB (AP63 ONLY)	RY15	0700027M	CF 1/16W 100-JB (AP63 ONLY)
RX04	0700039M	CF 1/16W 820-JB (AP63 ONLY)	RY16	0700045M	CF 1/16W 2.2K-JB
RX05	0700036M	CF 1/16W 470-JB (AP63 ONLY)	RY17	0700047M	CF 1/16W 3.3K-JB
RX06	0700043M	CF 1/16W 1.5K-JB (AP63 ONLY)	RY18	0700054M	CF 1/16W 10K-JB
RX07	0700027M	CF 1/16W 100-JB (AP63 ONLY)	RY19	0700041M	CF 1/16W 1.0K-JB
RX08	0700039M	CF 1/16W 820-JB (AP63 ONLY)	RY20	0700039M	CF 1/16W 820-JB
RX12	0700043M	CF 1/16W 1.5K-JB (AP63 ONLY)	RY21	0700048M	CF 1/16W 3.9K-JB
RX13	0700039M	CF 1/16W 820-JB (AP63 ONLY)	RY22	0700034M	CF 1/16W 330-JB
RX14	0700063M	CF 1/16W 47K-JB (AP63 ONLY)	RY23	0700025M	CF 1/16W 68-J (AP63 ONLY)
RX15	0700036M	CF 1/16W 470-JB (AP63 ONLY)	RY23	0700027M	CF 1/16W 100-JB (AP63B ONLY)
RX16	0700033M	CF 1/16W 270-JB (AP63 ONLY)	RY24	0700041M	CF 1/16W 1.0K-JB
RX17	0100125M	CF 1/8W 330K-JB (AP63 ONLY)	RY25	0700054M	CF 1/16W 10K-JB
RX18	0700056M	CF 1/16W 15K-JB (AP63 ONLY)	RY26	0700043M	CF 1/16W 1.5K-JB
RX19	0700041M	CF 1/16W 1.0K-JB (AP63 ONLY)	RY27	0187080M	CF 1/16W 4.3K-JB
RX20	0187054M	CF 1/16W 360-JB (AP63 ONLY)	RY28	0700052M	CF 1/16W 6.8K-JB
RX21	0700051M	CF 1/16W 5.6K-JB (AP63 ONLY)	RY29	0700047M	CF 1/16W 3.3K-JB
RX22	0700041M	CF 1/16W 1.0K-JB (AP63 ONLY)	RY30	0700027M	CF 1/16W 100-JB
RX23	0700035M	CF 1/16W 390-JB (AP63 ONLY)	RY31	0100038M	CF 1/8W 75-JB
RX24	0700054M	CF 1/16W 10K-JB (AP63 ONLY)	RY32	0100038M	CF 1/8W 75-JB
RX25	0700054M	CF 1/16W 10K-JB (AP63 ONLY)	RY33	0700063M	CF 1/16W 47K-JB
RX26	0100130M	CF 1/8W 510K-JB (AP63 ONLY)	RY34	0700058M	CF 1/16W 22K-JB
RX27	0700047M	CF 1/16W 3.3K-JB (AP63 ONLY)	RY35	0100038M	CF 1/8W 75-JB
RX28	0700039M	CF 1/16W 820-JB (AP63 ONLY)	RY36	0700027M	CF 1/16W 100-JB
RX29	0700027M	CF 1/16W 100-JB (AP63 ONLY)	RY37	0700027M	CF 1/16W 100-JB
RX30	0700039M	CF 1/16W 820-JB (AP63 ONLY)	RY38	0700041M	CF 1/16W 1.0K-JB
RX31	0700041M	CF 1/16W 1.0K-JB (AP63 ONLY)	RY39	0700034M	CF 1/16W 330-JB
RX32	0700039M	CF 1/16W 820-JB (AP63 ONLY)	RY40	0114137M	CF 1/4W 180-JB
RX33	0700041M	CF 1/16W 1.0K-JB (AP63 ONLY)	RY41	0100037M	CF 1/8W 68-JB
RX34	0700057M	CF 1/16W 18K-JB (AP63 ONLY)	RY42	0700067M	CF 1/16W 100K-JB
RX35	0700064M	CF 1/16W 56K-JB (AP63 ONLY)	RY43	0700041M	CF 1/16W 1.0K-JB
RX36	0700036M	CF 1/16W 470-JB (AP63 ONLY)	RY44	0700054M	CF 1/16W 10K-JB
RX37	0700041M	CF 1/16W 1.0K-JB (AP63 ONLY)	RY45	0700039M	CF 1/16W 820-JB
RX38	0700033M	CF 1/16W 270-JB (AP63 ONLY)	RY46	0700027M	CF 1/16W 100-JB
RX39	0700054M	CF 1/16W 10K-JB (AP63 ONLY)	RY47	0700054M	CF 1/16W 10K-JB
RX40	0700027M	CF 1/16W 100-JB (AP63 ONLY)	RY48	0700027M	CF 1/16W 100-JB
RX41	0700039M	CF 1/16W 820-JB (AP63 ONLY)	RY50	0700027M	CF 1/16W 100-JB
RX42	0700041M	CF 1/16W 1.0K-JB (AP63 ONLY)	RY51	0700038M	CF 1/16W 680-JB
RX43	0700044M	CF 1/16W 1.8K-JB (AP63 ONLY)	RY52	0700043M	CF 1/16W 1.5K-JB
RX44	0700041M	CF 1/16W 1.0K-JB (AP63 ONLY)	RY53	0700039M	CF 1/16W 820-JB
RX45	0700062M	CF 1/16W 39K-JB (AP63 ONLY)	RY54	0700063M	CF 1/16W 47K-JB
RX46	0700054M	CF 1/16W 10K-JB (AP63 ONLY)	RY56	0700027M	CF 1/16W 100-JB
RX47	0700036M	CF 1/16W 470-JB (AP63 ONLY)	RY57	0100055M	CF 1/8W 390-JB
RX48	0700034M	CF 1/16W 330-JB (AP63 ONLY)	RY58	0700041M	CF 1/16W 1.0K-JB
RX49	0700027M	CF 1/16W 100-JB (AP63 ONLY)	RY59	0700046M	CF 1/16W 2.7K-JB
RX50	0700039M	CF 1/16W 820-JB (AP63 ONLY)	RY60	0700043M	CF 1/16W 1.5K-JB
RX51	0700047M	CF 1/16W 3.3K-JB (AP63 ONLY)	RY61	0100115M	CF 1/8W 120K-JB
RX52	0700047M	CF 1/16W 3.3K-JB (AP63 ONLY)	RY62	0700052M	CF 1/16W 6.8K-JB
RX53	0187088M	CF 1/16W 9.1K-JB (AP63 ONLY)	RY63	0700057M	CF 1/16W 18K-JB
RX55	0700027M	CF 1/16W 100-JB (AP63 ONLY)	RY64	0100121M	CF 1/8W 220K-JB

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SYMBOL NO.	PART NO.	PART DESCRIPTION
RY65	0700061M	CF 1/16W 33K-JB
RY66	0700029M	CF 1/16W 150-JB
RY67	0700039M	CF 1/16W 820-JB
RY68	0700034M	CF 1/16W 330-JB
RY70	0187038M	CF 1/16W 75-J
RY71	0187038M	CF 1/16W 75-J
RY74	0700063M	CF 1/16W 47K-JB
RY75	0700041M	CF 1/16W 1.0K-JB
RY76	0700058M	CF 1/16W 22K-JB
RY77	0100123M	CF 1/8W 270K-JB
RY78	0100123M	CF 1/8W 270K-JB
R0A1	0700058M	CF 1/16W 22K-JB (AP63B ONLY)
R0A2	0700041M	CF 1/16W 1.0K-JB (AP63B ONLY)
R0A3	0700058M	CF 1/16W 22K-JB
R0A5	0700027M	CF 1/16W 100-JB
R0A6	0700037M	CF 1/16W 560-JB
R0A7	0700027M	CF 1/16W 100-JB
R0A8	0700041M	CF 1/16W 1.0K-JB
R0A9	0700041M	CF 1/16W 1.0K-JB
R0C1	0700041M	CF 1/16W 1.0K-JB
R0C2	0700041M	CF 1/16W 1.0K-JB
R0C3	0700058M	CF 1/16W 22K-JB
R0C4	0700027M	CF 1/16W 100-JB
R0C5	0700027M	CF 1/16W 100-JB
R0C7	0700056M	CF 1/16W 15K-JB
R0C8	0700063M	CF 1/16W 47K-JB
R0C9	0700054M	CF 1/16W 10K-JB
R0E1	0100041M	CF 1/8W 100-JB
R0E2	0700054M	CF 1/16W 10K-JB
R0E3	0114149M	CF SRD 1/4 PF 560-J
R0E4	0700058M	CF 1/16W 22K-JB
R0E5	0700041M	CF 1/16W 1.0K-JB
R0E6	0700063M	CF 1/16W 47K-JB
R0E7	0700055M	CF 1/16W 12K-JB
R0E8	0700054M	CF 1/16W 10K-JB
R0E9	0700041M	CF 1/16W 1.0K-JB
R0F1	0700041M	CF 1/16W 1.0K-JB
R0F2	0700041M	CF 1/16W 1.0K-JB
R0F3	0700041M	CF 1/16W 1.0K-JB
R0F4	0700041M	CF 1/16W 1.0K-JB
R0F5	0700041M	CF 1/16W 1.0K-JB
R0F6	0700041M	CF 1/16W 1.0K-JB
R0F7	0700067M	CF 1/16W 100K-JB
R0F8	0700041M	CF 1/16W 1.0K-JB
R0F9	0700051M	CF 1/16W 5.6K-JB
R0G1	0100123R	CF 1/8W 270K-J
R0G2	0700041M	CF 1/16W 1.0K-JB
R0G3	0700041M	CF 1/16W 1.0K-JB
R0G4	0700041M	CF 1/16W 1.0K-JB
R0G5	0700027M	CF 1/16W 100-JB
R0G6	0700027M	CF 1/16W 100-JB
R0G7	0100065M	CF 1/8W 1K-JB
R0G8	0100089M	CF 1/8W 10K-JB
R0G9	0100065M	CF 1/8W 1K-JB
R0H1	0100065M	CF 1/8W 1K-JB
R0H2	0700049M	CF 1/16W 4.7K-JB
R0H3	0700058M	CF 1/16W 22K-JB
R0H4	0700067M	CF 1/16W 100K-JB
R0H5	0700049M	CF 1/16W 4.7K-JB
R0H6	0700031M	CF 1/16W 180-JB
R0H7	0700066M	CF 1/16W 82K-JB
R0H8	0100107M	CF 1/8W 56K-JB
R0H9	0700056M	CF 1/16W 15K-JB
R0L1	0700041M	CF 1/16W 1.0K-JB
R0L3	0700058M	CF 1/16W 22K-JB
R0L4	0700058M	CF 1/16W 22K-JB
R0L5	0700058M	CF 1/16W 22K-JB
R0L6	0700041M	CF 1/16W 1.0K-JB
R0L7	0700054M	CF 1/16W 10K-JB
R0L8	0700042M	CF 1/16W 1.2K-JB
R0L9	0700054M	CF 1/16W 10K-JB
R0M1	0700054M	CF 1/16W 10K-JB
R0M2	0700049M	CF 1/16W 4.7K-JB
R0M3	0700054M	CF 1/16W 10K-JB
R001	0700054M	CF 1/16W 10K-JB
R002	0700066M	CF 1/16W 82K-JB
R003	0700051M	CF 1/16W 5.6K-JB
R004	0700054M	CF 1/16W 10K-JB
R005	0700063M	CF 1/16W 47K-JB
R006	0700063M	CF 1/16W 47K-JB
R008	0700063M	CF 1/16W 47K-JB
R009	0700054M	CF 1/16W 10K-JB
R010	0700054M	CF 1/16W 10K-JB
R011	0700041M	CF 1/16W 1.0K-JB
R012	0700064M	CF 1/16W 56K-JB
R014	0700054M	CF 1/16W 10K-JB
R015	0700055M	CF 1/16W 12K-JB
R016	0700051M	CF 1/16W 5.6K-JB
R017	0700041M	CF 1/16W 1.0K-JB
R018	0700032M	CF 1/16W 220-JB
R019	0100041M	CF 1/8W 100-JB
R020	0700032M	CF 1/16W 220-JB
R021	0700041M	CF 1/16W 1.0K-JB
R022	0700041M	CF 1/16W 1.0K-JB
R023	0700036M	CF 1/16W 470-JB
R024	0150110	RES.-VARIABLE RV6 500-B
R025	0700036M	CF 1/16W 470-JB
R026	0150110	VR RV6 500-B
R028	0700041M	CF 1/16W 1.0K-JB
R029	0150111	VR RV6 1K-B
R031	0700032M	CF 1/16W 220-JB
R032	0700027M	CF 1/16W 100-JB
R033	0700027M	CF 1/16W 100-JB
R034	0700054M	CF 1/16W 10K-JB
R035	0700058M	CF 1/16W 22K-JB
R036	0700027M	CF 1/16W 100-JB
R037	0700058M	CF 1/16W 22K-JB
R038	0700027M	CF 1/16W 100-JB
R039	0700041M	CF 1/16W 1.0K-JB
R040	0700041M	CF 1/16W 1.0K-JB
R041	0700041M	CF 1/16W 1.0K-JB
R042	0700051M	CF 1/16W 5.6K-JB
R043	0700027M	CF 1/16W 100-JB
R044	0700058M	CF 1/16W 22K-JB
R045	0700041M	CF 1/16W 1.0K-JB
R046	0700058M	CF 1/16W 22K-JB
R047	0700041M	CF 1/16W 1.0K-JB
R048	0700058M	CF 1/16W 22K-JB
R049	0700041M	CF 1/16W 1.0K-JB
R050	0700057M	CF 1/16W 18K-JB
R051	0700049M	CF 1/16W 4.7K-JB
R052	0700058M	CF 1/16W 22K-JB
R053	0700054M	CF 1/16W 10K-JB
R054	0700058M	CF 1/16W 22K-JB
R055	0700027M	CF 1/16W 100-JB
R056	0700027M	CF 1/16W 100-JB
R057	0700041M	CF 1/16W 1.0K-JB
R058	0700041M	CF 1/16W 1.0K-JB

REPLACEMENT PARTS LIST

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SYMBOL NO.	PART NO.	PART DESCRIPTION
R059	0700058M	CF 1/16W 22K-JB
R060	0700041M	CF 1/16W 1.0K-JB
R061	0700042M	CF 1/16W 1.2K-JB
R062	0700042M	CF 1/16W 1.2K-JB
R063	0700042M	CF 1/16W 1.2K-JB
R064	0700043M	CF 1/16W 1.5K-JB
R066	0700027M	CF 1/16W 100-JB
R067	0700051M	CF 1/16W 5.6K-JB
R068	0700027M	CF 1/16W 100-JB
R069	0700049M	CF 1/16W 4.7K-JB
R070	0700051M	CF 1/16W 5.6K-JB
R071	0700041M	CF 1/16W 1.0K-JB
R072	0700052M	CF 1/16W 6.8K-JB
R073	0700027M	CF 1/16W 100-JB
R074	0700058M	CF 1/16W 22K-JB
R075	0700058M	CF 1/16W 22K-JB
R076	0700041M	CF 1/16W 1.0K-JB
R077	0700058M	CF 1/16W 22K-JB
R078	0700027M	CF 1/16W 100-JB
R079	0700058M	CF 1/16W 22K-JB
R080	0700027M	CF 1/16W 100-JB
R081	0700049M	CF 1/16W 4.7K-JB
R082	0700032M	CF 1/16W 220-JB
R083	0700041M	CF 1/16W 1.0K-JB
R084	0700041M	CF 1/16W 1.0K-JB
R085	0700041M	CF 1/16W 1.0K-JB
R086	0700041M	CF 1/16W 1.0K-JB
R087	0700041M	CF 1/16W 1.0K-JB
R088	0700041M	CF 1/16W 1.0K-JB
R089	0700027M	CF 1/16W 100-JB
R090	0700041M	CF 1/16W 1.0K-JB
R092	0700055M	CF 1/16W 12K-JB
R093	0700054M	CF 1/16W 10K-JB
R094	0700045M	CF 1/16W 2.2K-JB
R095	0700054M	CF 1/16W 10K-JB
R096	0700054M	CF 1/16W 10K-JB
R097	0700054M	CF 1/16W 10K-JB
R098	0700054M	CF 1/16W 10K-JB
R099	0700041M	CF 1/16W 1.0K-JB
R101	0700039M	CF 1/16W 820-JB
R102	0700041M	CF 1/16W 1.0K-JB
R103	0700038M	CF 1/16W 680-JB
R104	0700041M	CF 1/16W 1.0K-JB
R105	0700041M	CF 1/16W 1.0K-JB
R106	0700038M	CF 1/16W 680-JB
R107	0700054M	CF 1/16W 10K-JB
R108	0100065M	CF 1/8W 1K-JB
R109	0700054M	CF 1/16W 10K-JB
R111	0700027M	CF 1/16W 100-JB
R112	0700054M	CF 1/16W 10K-JB
R113	0700051M	CF 1/16W 5.6K-JB
R114	0700041M	CF 1/16W 1.0K-JB
R115	0700041M	CF 1/16W 1.0K-JB
R116	0700041M	CF 1/16W 1.0K-JB
R117	0700041M	CF 1/16W 1.0K-JB
R118	0100059M	CF 1/8W 560-JB
R119	0100059M	CF 1/8W 560-JB
R121	0700041M	CF 1/16W 1.0K-JB
R122	0700041M	CF 1/16W 1.0K-JB
R123	0700041M	CF 1/16W 1.0K-JB
R124	0700041M	CF 1/16W 1.0K-JB
R125	0700041M	CF 1/16W 1.0K-JB
R126	0700059M	CF 1/16W 27K-JB
R127	0700041M	CF 1/16W 1.0K-JB
R128	0700041M	CF 1/16W 1.0K-JB
R129	0700041M	CF 1/16W 1.0K-JB
R130	0700022M	CF 1/16W 39-J
R131	0700041M	CF 1/16W 1.0K-JB
R132	0700058M	CF 1/16W 22K-JB
R133	0700058M	CF 1/16W 22K-JB
R134	0700041M	CF 1/16W 1.0K-JB
R135	0700041M	CF 1/16W 1.0K-JB
R136	0700062M	CF 1/16W 39K-JB
R3A4	0700041M	CF 1/16W 1.0K-JB
R3A5	0700041M	CF 1/16W 1.0K-JB
R3A6	0700032M	CF 1/16W 220-JB
R3A7	0700032M	CF 1/16W 220-JB
R3A8	0700032M	CF 1/16W 220-JB
R3C3	0700041M	CF 1/16W 1.0K-JB
R3C4	0700041M	CF 1/16W 1.0K-JB
R3C5	0700055M	CF 1/16W 12K-JB
R3C6	0700054M	CF 1/16W 10K-JB
R3C7	0700063M	CF 1/16W 47K-JB
R3C8	0700063M	CF 1/16W 47K-JB
R306	0700058M	CF 1/16W 22K-JB
R307	0700058M	CF 1/16W 22K-JB
R308	0700049M	CF 1/16W 4.7K-JB
R309	0700065M	CF 1/16W 68K-JB
R310	0700049M	CF 1/16W 4.7K-JB
R311	0700061M	CF 1/16W 33K-JB
R312	0700029M	CF 1/16W 150-JB
R313	0700046M	CF 1/16W 2.7K-JB
R314	0700054M	CF 1/16W 10K-JB
R315	0700065M	CF 1/16W 68K-JB
R316	0700067M	CF 1/16W 100K-JB
R317	0700064M	CF 1/16W 56K-JB
R318	0700058M	CF 1/16W 22K-JB
R322	0700065M	CF 1/16W 68K-JB
R323	0700052M	CF 1/16W 6.8K-JB
R324	0700046M	CF 1/16W 2.7K-JB
R325	0187080M	CF 1/16W 4.3K-JB
R326	0700054M	CF 1/16W 10K-JB
R327	0700054M	CF 1/16W 10K-JB
R328	0700066M	CF 1/16W 82K-JB
R329	0700067M	CF 1/16W 100K-JB
R330	0700058M	CF 1/16W 22K-JB
R332	0700048M	CF 1/16W 3.9K-JB
R333	0700034M	CF 1/16W 330-JB
R334	0700054M	CF 1/16W 10K-JB
R335	0700034M	CF 1/16W 330-JB
R336	0700034M	CF 1/16W 330-JB
R337	0700027M	CF 1/16W 100-JB
R338	0700051M	CF 1/16W 5.6K-JB
R339	0150113	VR RV6 5K-B
R340	0700041M	CF 1/16W 1.0K-JB
R341	0700039M	CF 1/16W 820-JB
R342	0700033M	CF 1/16W 270-JB
R343	0700047M	CF 1/16W 3.3K-JB
R344	0700041M	CF 1/16W 1.0K-JB
R345	0100125M	CF 1/8W 330K-JB
R346	0700041M	CF 1/16W 1.0K-JB
R347	0700062M	CF 1/16W 39K-JB
R348	0100051M	CF 1/8W 270-JB
R349	0700037M	CF 1/16W 560-JB
R350	0114135M	CF 1/4W 150-JB
R360	0700033M	CF 1/16W 270-JB
R361	0700061M	CF 1/16W 33K-JB
R362	0700029M	CF 1/16W 150-JB

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SYMBOL NO.	PART NO.	PART DESCRIPTION
R363	0700049M	CF 1/16W 4.7K-JB
R364	0700051M	CF 1/16W 5.6K-JB
R365	0700064M	CF 1/16W 56K-JB (AP63 ONLY)
R366	0100133M	CF 1/8W 680K-JB (AP63 ONLY)
R370	0700052M	CF 1/16W 6.8K-JB
R371	0700049M	CF 1/16W 4.7K-JB
R372	0700046M	CF 1/16W 2.7K-JB
R373	0700049M	CF 1/16W 4.7K-JB
R374	0700048M	CF 1/16W 3.9K-JB
R375	0700048M	CF 1/16W 3.9K-JB
R376	0700041M	CF 1/16W 1.0K-JB
R377	0179536M	MG 1M J TAPE
R378	0700054M	CF 1/16W 10K-JB
R379	0700052M	CF 1/16W 6.8K-JB
R380	0700067M	CF 1/16W 100K-JB
R381	0100119M	CF 1/8W 180K-JB
R382	0700042M	CF 1/16W 1.2K-JB
R401	0700054M	CF 1/16W 10K-JB
R402	0700041M	CF 1/16W 1.0K-JB
R404	0700041M	CF 1/16W 1.0K-JB
R405	0700045M	CF 1/16W 2.2K-JB
R406	0700045M	CF 1/16W 2.2K-JB
R407	0700045M	CF 1/16W 2.2K-JB
R408	0700045M	CF 1/16W 2.2K-JB
R411	0700063M	CF 1/16W 47K-JB
R412	0700063M	CF 1/16W 47K-JB
R413	0700067M	CF 1/16W 100K-JB
R414	0700036M	CF 1/16W 470-JB
R415	0700041M	CF 1/16W 1.0K-JB
R416	0700058M	CF 1/16W 22K-JB
R417	0119505G	MF 2.2-J
R418	0119505G	MF 2.2-J
R419	0700065M	CF 1/16W 68K-JB
R420	0700065M	CF 1/16W 68K-JB
R421	0114161M	CF 1/4W 1K-JB
R422	0114161M	CF 1/4W 1K-JB
R423	0700065M	CF 1/16W 68K-JB
R425	0700054M	CF 1/16W 10K-JB
R5A1	0700037M	CF 1/16W 560-JB (AP63B ONLY)
R5A2	0700037M	CF 1/16W 560-JB (AP63B ONLY)
R5A3	0187110M	CF 1/16W 75K-JB (AP63B ONLY)
R5A4	0700056M	CF 1/16W 15K-JB (AP63B ONLY)
R5A5	0700041M	CF 1/16W 1.0K-JB (AP63B ONLY)
R5A6	0700031M	CF 1/16W 180-JB (AP63B ONLY)
R5A7	0700032M	CF 1/16W 220-JB (AP63B ONLY)
R5A8	0700045M	CF 1/16W 2.2K-JB (AP63B ONLY)
R5A9	0700027M	CF 1/16W 100-JB (AP63B ONLY)
R5C1	0700027M	CF 1/16W 100-JB (AP63B ONLY)
R5C2	0700027M	CF 1/16W 100-JB (AP63B ONLY)
R5E2	0700056M	CF 1/16W 15K-JB
R5E3	0114131M	CF 1/4W 100-JB
R5E4	0700054M	CF 1/16W 10K-JB
R5E5	0700027M	CF 1/16W 100-JB
R5E6	0700038M	CF 1/16W 680-JB
R5E7	0700032M	CF 1/16W 220-JB
R5E9	0700056M	CF 1/16W 15K-JB
R5F1	0700055M	CF 1/16W 12K-JB
R5F2	0700027M	CF 1/16W 100-JB
R5F3	0700027M	CF 1/16W 100-JB
R5F4	0700053M	CF 1/16W 8.2K-JB
R5F5	0700057M	CF 1/16W 18K-JB
R5F6	0700041M	CF 1/16W 1.0K-JB
R5F7	0119691M	MF 1W 0.33JB
R5F8	0119691M	MF 1W 0.33JB
R5F9	0119691M	MF 1W 0.33JB
R5G1	0700049M	CF 1/16W 4.7K-JB
R502	0100037M	CF 1/8W 68-JB
R503	0100049M	CF 1/8W 220-JB
R504	0100049M	CF 1/8W 220-JB
R505	0100049M	CF 1/8W 220-JB
R506	0100041M	CF 1/8W 100-JB
R507	0187086M	CF 1/16W 7.5K-JB
R508	0700054M	CF 1/16W 10K-JB
R510	0700041M	CF 1/16W 1.0K-JB
R511	0100129M	CF 1/8W 470K-JB
R512	0700065M	CF 1/16W 68K-JB
R513	0700061M	CF 1/16W 33K-JB
R514	0700067M	CF 1/16W 100K-JB
R515	0700054M	CF 1/16W 10K-JB
R516	0700054M	CF 1/16W 10K-JB
R517	0700054M	CF 1/16W 10K-JB
R518	0700067M	CF 1/16W 100K-JB
R519	0700065M	CF 1/16W 68K-JB
R520	0700067M	CF 1/16W 100K-JB
R521	0700059M	CF 1/16W 27K-JB
R522	0700054M	CF 1/16W 10K-JB
R523	0700054M	CF 1/16W 10K-JB
R524	0700047M	CF 1/16W 3.3K-JB
R525	0700061M	CF 1/16W 33K-JB
R526	0700046M	CF 1/16W 2.7K-JB
R527	0700049M	CF 1/16W 4.7K-JB
R528	0700054M	CF 1/16W 10K-JB
R529	0700054M	CF 1/16W 10K-JB
R530	0700029M	CF 1/16W 150-JB
R531	0700054M	CF 1/16W 10K-JB
R537	0700029M	CF 1/16W 150-JB
R539	0700041M	CF 1/16W 1.0K-JB
R540	0700041M	CF 1/16W 1.0K-JB
R541	0700041M	CF 1/16W 1.0K-JB
R542	0700041M	CF 1/16W 1.0K-JB
R543	0700041M	CF 1/16W 1.0K-JB
R544	0700041M	CF 1/16W 1.0K-JB
R545	0700041M	CF 1/16W 1.0K-JB
R546	0100047M	CF 1/8W 180-JB
R547	0700041M	CF 1/16W 1.0K-JB
R548	0700041M	CF 1/16W 1.0K-JB
R549	0700041M	CF 1/16W 1.0K-JB
R550	0700027M	CF 1/16W 100-JB
R551	0700032M	CF 1/16W 220-JB
R555	0700032M	CF 1/16W 220-JB
R556	0700032M	CF 1/16W 220-JB
R557	0700041M	CF 1/16W 1.0K-JB
R558	0100062M	CF 1/8W 750-JB
R559	0700041M	CF 1/16W 1.0K-JB
R561	0700054M	CF 1/16W 10K-JB
R562	0700058M	CF 1/16W 22K-JB
R563	0700058M	CF 1/16W 22K-JB
R607	0179536M	MG 1M J TAPE
R608	0700063M	CF 1/16W 47K-JB
R609	0100065M	CF 1/8W 1K-JB
R610	0700061M	CF 1/16W 33K-JB
R611	0700064M	CF 1/16W 56K-JB
R612	0150307	VR RV06 30K-B
R613	0700065M	CF 1/16W 68K-JB
R614	0700061M	CF 1/16W 33K-JB
R615	0700038M	CF 1/16W 680-JB
R616	0700064M	CF 1/16W 56K-JB
R617	0119722M	MF 1.0-JB/W

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SYMBOL NO.	PART NO.	PART DESCRIPTION
R618	0119722M	MF 1.0-JB/W
R619	0700027M	CF 1/16W 100-JB
R620	0700054M	CF 1/16W 10K-JB
R621	0700051M	CF 1/16W 5.6K-JB
R622	0700065M	CF 1/16W 68K-JB
R623	0113766M	CF SRD1/2P-B 4.7K-J
R624	0110121S	MF 100-JS
R625	0113725M	CF SRD1/2P-B 100-J
R626	0113725M	CF SRD1/2P-B 100-J
R627	0113725M	CF SRD1/2P-B 100-J
R635	0100053M	CF 1/8W 330-JB
R636	0100063M	CF 1/8W 820-JB
R637	0700044M	CF 1/16W 1.8K-JB
R638	0700058M	CF 1/16W 22K-JB
R639	0700041M	CF 1/16W 1.0K-JB
R640	0700041M	CF 1/16W 1.0K-JB
R641	0700052M	CF 1/16W 6.8K-JB
R642	0700061M	CF 1/16W 33K-JB
R643	0700056M	CF 1/16W 15K-JB
R646	0700045M	CF 1/16W 2.2K-JB
R647	0700054M	CF 1/16W 10K-JB
R648	0700052M	CF 1/16W 6.8K-JB
R649	0150307	VR RV06 30K-B
R650	0700051M	CF 1/16W 5.6K-JB
R651	0700058M	CF 1/16W 22K-JB
R652	0700063M	CF 1/16W 47K-JB
R653	0700041M	CF 1/16W 1.0K-JB
R654	0700047M	CF 1/16W 3.3K-JB
R655	0700067M	CF 1/16W 100K-JB
R656	0700045M	CF 1/16W 2.2K-JB
R658	0114135M	CF 1/4W 150-JB
R659	0100045M	CF 1/8W 150-JB
R660	0119731M	MF 1W R68-K TAPE
R661	0700054M	CF 1/16W 10K-JB
R662	0700041M	CF 1/16W 1.0K-JB
R663	0700059M	CF 1/16W 27K-JB
R664	0700041M	CF 1/16W 1.0K-JB
R665	0700054M	CF 1/16W 10K-JB
R666	0700059M	CF 1/16W 27K-JB
R667	0119732M	MF 1.2-JB
R680	0700039M	CF 1/16W 820-JB
R699	0700061M	CF 1/16W 33K-JB
R701	0700039M	CF 1/16W 820-JB
R702	0700041M	CF 1/16W 1.0K-JB
R703	0113770M	CF SRD1/2P-B 6.8K-J
R704	0110355S	MF 3W 2.7K-J
R705	0110351S	MF 1.8K-J
⚠R706	0119688M	MF 1W 0.22-JB
R707	0100031M	CF 1/8W 39-JB
R708	0113791M	CF 1/2W 47K-JB
R709	0113785M	CF SRD1/2P-B 27K-J
R710	0110229S	MF 220-JS
⚠R711	0119512G	MG RN1/4P 1.0-JF
⚠R712	0119514G	MF 10-J
R713	0113705M	CF SRD1/2P-B 15-J
⚠R714	0700063M	CF 1/16W 47K-JB
R715	0100085M	CF 1/8W 6.8K-JB
R716	0700042M	CF 1/16W 1.2K-JB
R717	0114149M	CF SRD 1/4 PF 560-J
R718	0100127M	CF 1/8W 390K-JB
R719	0700054M	CF 1/16W 10K-JB
R721	0140327S	WW 6.8K-J 5W
R723	0110215S	MF 2W56-J
R724	0114177M	CF SRD 1/4 P 4.7K-J
R725	0700052M	CF 1/16W 6.8K-JB
R726	0700048M	CF 1/16W 3.9K-JB
R727	0700049M	CF 1/16W 4.7K-JB
R728	0700045M	CF 1/16W 2.2K-JB
R729	0700047M	CF 1/16W 3.3K-JB
R730	0113729M	CF 1/2W 150-JB
R731	0110101S	MF 1W 15-JS
R734	0110129S	MF 220-JS
R735	0110129S	MF 220-JS
⚠R741	0700046M	CF 1/16W 2.7K-JB
R742	0114183M	CF SRD 1/4 P 8.2K-J
R743	0700051M	CF 1/16W 5.6K-JB
R744	0700052M	CF 1/16W 6.8K-JB
R745	0700056M	CF 1/16W 15K-JB
R746	0114139M	CF SRD 1/4 P 220-J
R801	0140326S	MF 5.6K OHM +-5% 5W
R803	0113744	CF 560 OHM +-5% 1/2W
R806	0113815	CF 470K OHM +-5% 1/2W
R809	0100065	CF 1K OHM +-5% 1/8W
R810	0100035	CF 56 OHM +-5% 1/8W
R811	0100065	CF 1K OHM +-5% 1/8W
R812	0100044	CF 130 OHM +-5% 1/8W
R815	0100059	CF 560 OHM +-5% 1/8W
R817	0100041	CF 100 OHM +-5% 1/8W
R818	0100049	CF 220 OHM +-5% 1/8W
R831	0140326S	MF 5.6K OHM +-5% 5W
R833	0113744	CF 560 OHM +-5% 1/2W
R836	0113815	CF 470K OHM +-5% 1/2W
R840	0100035	CF 56 OHM +-5% 1/8W
R841	0100065	CF 1K OHM +-5% 1/8W
R842	0100033	CF 47 OHM +-5% 1/8W
R843	0150001	VR 200 OHM-B
R845	0100059	CF 560 OHM +-5% 1/8W
R847	0100041	CF 100 OHM +-5% 1/8W
R850	0100089	CF 10K OHM +-5% 1/8W
R851	0100051	CF 270 OHM +-5% 1/8W
R861	0140326S	MF 5.6K OHM +-5% 5W
R863	0113744	CF 560 OHM +-5% 1/2W
R866	0113815	CF 470K OHM +-5% 1/2W
R870	0100035	CF 56 OHM +-5% 1/8W
R871	0100065	CF 1K OHM +-5% 1/8W
R872	0100033	CF 47 OHM +-5% 1/8W
R873	0150001	VR 200 OHM-B
R875	0100059	CF 560 OHM +-5% 1/8W
R877	0100049	CF 220 OHM +-5% 1/8w
R880	0100089	CF 10K OHM +-5% 1/8W
R881	0100043	CF 120 OHM +-5% 1/8W
R903	0147060	WW 2W 33-K
⚠R904	0147804	WW 15W 0.75-KM CEMENTED
R905	0148009	WW 2W 0.056-J
R906	0700037M	CF 1/16W 560-JB
R907	0700046M	CF 1/16W 2.7K-JB
R908	0700054M	CF 1/16W 10K-JB
R909	0700047M	CF 1/16W 3.3K-JB
R911	0700049M	CF 1/16W 4.7K-JB
R912	0700049M	CF 1/16W 4.7K-JB
R913	0110265S	MF 6.8K-JS
R914	0700023M	CF 1/16W 47-J
R915	0700027M	CF 1/16W 100-JB
R916	0700036M	CF 1/16W 470-JB
R917	0700061M	CF 1/16W 33K-JB
R918	0114161M	CF 1/4W 1K-JB
R920	0110237S	MF 2W 470-J
R921	0700057M	CF 1/16W 18K-JB

REPLACEMENT PARTS LIST

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SYMBOL NO.	PART NO.	PART DESCRIPTION
R922	0700057M	CF 1/16W 18K-JB
R923	0700047M	CF 1/16W 3.3K-JB
R924	0700047M	CF 1/16W 3.3K-JB
R932	0110145S	MF 1.0K-JS
⚠R934	0119839M	MF 0.56-J 1W
R935	0700054M	CF 1/16W 10K-JB
R936	0700058M	CF 1/16W 22K-JB
R937	0700063M	CF 1/16W 47K-JB
⚠R938	0113797M	CF 1/2W 82K-JB
⚠R939	0700051M	CF 1/16W 5.6K-JB
R940	0700054M	CF 1/16W 10K-JB
R941	0700054M	CF 1/16W 10K-JB
R942	0700058M	CF 1/16W 22K-JB
R943	0700036M	CF 1/16W 470-JB
R944	0700041M	CF 1/16W 1.0K-JB
⚠R945	0700039M	CF 1/16W 820-JB
⚠R946	0700043M	CF 1/16W 1.5K-JB
R947	0700041M	CF 1/16W 1.0K-JB
R948	0700045M	CF 1/16W 2.2K-JB
R949	0700038M	CF 1/16W 680-JB
R950	0700039M	CF 1/16W 820-JB
R951	0700049M	CF 1/16W 4.7K-JB
R952	0700043M	CF 1/16W 1.5K-JB
R953	0700051M	CF 1/16W 5.6K-JB
R954	0700051M	CF 1/16W 5.6K-JB
R956	0700045M	CF 1/16W 2.2K-JB
R958	0700067M	CF 1/16W 100K-JB
R959	0700051M	CF 1/16W 5.6K-JB
R972	0110145S	MF 1.0K-JS
R973	0700042M	CF 1/16W 1.2K-JB
R980	0700045M	CF 1/16W 2.2K-JB
R982	0700056M	CF 1/16W 15K-JB
R983	0700037M	CF 1/16W 560-JB
R999	0113698M	CF 1/2W 8.2-J
		TRANSFORMERS
⚠T701	2260291	HORIZONTAL DRIVE TRANSFORMER
⚠T702	2436493	FLYBACK TRANSFORMER
⚠T703	2272762	SPC TRANSFORMER
⚠T901	BT00161	POWER TRANSFORMER (40M 120V)
⚠T902	BT00141	SWITCHING TRANSFORMER (240VA)
		SWITCHES
SM01	FE00061	1P TACT SWITCH
SM02	FE00061	1P TACT SWITCH
SM03	FE00061	1P TACT SWITCH
SM04	FE00061	1P TACT SWITCH
SM05	FE00061	1P TACT SWITCH
SM06	FE00061	1P TACT SWITCH
SM07	FE00061	1P TACT SWITCH
SM08	FE00091	SWP01N01-EVQQKH08Q
SM09	FE00091	SWP01N01-EVQQKH08Q
S301	FD00011	SLIDE SWITCH
S901	2640576	RELAY(SDT-SS-112DM)

SYMBOL NO.	PART NO.	PART DESCRIPTION
		MISCELLANEOUS
1	PH02576	ULTRA CONTROL PANEL ASS'Y
4	NA03233	LENS CRT METAL
5	NJ01361	SENSOR HOLDER BASE (CABINET MOUNT)
6	NJ01301	SENSOR HOLDER
7	FT00001	SOLAR BATTERY (8 LOCATIONS)
8	H311061	SPEAKER BOX
9	4524911	HEXAGON FLANGE HEAD B T-S 4*12
12	4137977	4 x 25 SELF TAPPING SCREW
13	KS00044	MIRROR (46UX24B/25K)
13	KS00045	MIRROR (50UX26B/27K,50SX8B)
13	KS00161	MIRROR (60SX12B/13K)
15	4520771	4 x 18 HEXAGON HEAD TAPPING SCREW WITH WASHER
16	4520772	4 x 14 HEX HEAD TAPPING SCREW
17	81481100	8 x 1 DRYWALL SCREW
19	6202AAB61	MIRROR CLEAT
20	4137975	4 x 16 TAPPING SCREW WITH WASHER
21	QD02642	46UX24B CABINET ASSEMBLY
21	QD02652	46UX25K CABINET ASSEMBLY
21	QD02641	50UX26B CABINET ASSEMBLY
21	QD02651	50UX27K CABINET ASSEMBLY
21	QD02644	50SX8B CABINET ASSEMBLY
21	QD02643	60SX12B CABINET ASSEMBLY
21	QD02653	60SX13K CABINET ASSEMBLY
22	QD01531	BACK COVER
23	H810202	8 x 3/4 PAN HEAD DRYWALL SCREW
24	55050006	MIRROR BOARD ASS'Y
26	H420781	MIRROR HANGER
27	NT00461	SCREEN FRAME ASS'Y B (46UX24B)
27	NT00462	SCREEN FRAME ASS'Y "B" (50UX26B)
27	NT00463	SCREEN FRAME ASS'Y "B" (50SX8B)
27	NT00464	SCREEN FRAME ASS'Y "B" (60SX12B)
27	NT00461	SCREEN FRAME ASS'Y (46UX25K)
27	NT00471	SCREEN FRAME ASS'Y (50UX27K)
27	NT00472	SCREEN FRAME ASS'Y (60SX13K)
30	PH00578	DECO PANEL (46UX25K)
30	PH00576	DECO PANEL (50UX27K)
30	PH00577	DECO PANEL (60SX13K)
⚠ 31	KQ00166K	LENS SASS
⚠ 32	KQ00166K	LENS SASS
⚠ 33	KQ00161K	LENS SASS CPC B
34	QG00221	REAR COVER ASS'Y (46UX24B/25K)
	H512214	LOWER REAR BOARD (46UX24B/25K)
34	QG00222	REAR COVER ASS'Y (50UX26B/27K, 50SX8B)
	H512213	LOWER REAR BRD (50UX26B/27K, 50SX8B)
34	H512197	REAR BOARD ASS'Y (60SX12B/13K)
35	33100020	MIDDLE BACK COVER (60SX12B)
35	33100017	MIDDLE BACK COVER (60SX13K)
36	33100019	UPPER BACK COVER (60SX12B)
36	33100018	UPPER BACK COVER (60SX13K)
⚠ 40	UE01551	LENS CRT BLOCK ASS'Y (R) 46"
⚠ 40	UE01561	LENS CRT BLOCK ASS'Y(R) 50"
⚠ 40	UE01564	LENS CRT BLOCK ASS'Y (R) 60"
⚠ 41	UE01552	LENS CRT BLOCK ASS'Y (G) 46"
⚠ 41	UE01562	LENS CRT BLOCK ASS'Y(G) 50"
⚠ 41	UE01562	LENS CRT BLOCK ASS'Y (G) 60"
⚠ 42	UE01553	LENS CRT BLOCK ASS'Y (B) 46"
⚠ 42	UE01563	LENS CRT BLOCK ASS'Y(B) 50"
⚠ 42	UE01565	LENS CRT BLOCK ASS'Y (B) 60"
45	KR00271	SCREEN ASS'Y (46UX24B/25K)
45	KR00272	SCREEN ASS'Y (50UX26B/27K, 50SX8B)
45	KR00273	SCREEN ASS'Y (60SX12B/13K)
47	H311121	SPEAKER GRILL ASS'Y (46UX24B)

REPLACEMENT PARTS LIST

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SYMBOL NO.	PART NO.	PART DESCRIPTION
47	H311124	SPEAKER GRILL ASS'Y (46UX25K)
47	H311122	SPEAKER GRILL ASS'Y (50UX26B, 50SX8B)
47	H311123	SPEAKER GRILL ASS'Y (50UX27K)
47	32110028	SPEAKER GRILL ASS'Y (60SX12B)
47	32110027	SPEAKER GRILL ASS'Y (60SX13K)
55	H420671	MIRROR METAL A
56	H420681	MIRROR METAL B
	3204182	R/C LENS
	3700921	475T LAMP LENS A
	3821734	CONTROL DOOR
	3827874	INDOOR PLATE
	3827875	DOOR PLATE
	3875771	LATCH 4T02 NYLON
	4517511	3X14 TAPPING SCREW WITH WASHER
	4517512	3 x 16 T-NE WITH WASHER
	H810211	M4X14 SCREW CROSS RECESS WITH WASHER
	H830072	1/8" FLAT WASHER
	PC01201	CONTROL BUTTON
	PH02242	TERMINAL HOLDER AP63
	PH02303	TERMINAL HOLDER AP63 SUB ASS'Y
	PH02582	CONTROL PANEL
⚠EANT	HP00341	ANT SW
EAN	2974056S	3J CONNE SEH UL1007 L=160
EB	2997977	1J MINI CONNE. L=910
EDC	2908848	9J CONNE. L=470
EDD	2908698	4J CONNE. L=470
EDG	2908878	PH CONNECTOR 10P L=470MM
EDH	2908728	5J CONNE. L=470
EDS	2908947	12J CONNE. L=1000
EFJ	2973837S	7J CONNE. L=1000
EFS	2958151	CONN. W/WIRE 1J (L=900)
EFT	2958134	CONN. W/WIRE MINI 4J (L1000)
EFV	2973957S	11J CONNE L=1000
EF92	2721351	FUSE HOLDER
EF96	2721351	FUSE HOLDER
EGQ	2908863	CONN. 10J L=100
EPA	EF01971	3J EH CONNE L=1500
EPP	2973631	CONECTOR 3P
ESC1	EF03971	CO-03C-C5R0-820W/ SM
ESC2	EF03981	CO-02C-F2R5-470 SM
ESL	2993565	CONN. W/WIRE MINI 5J (L1500) W/FASTON
ESR	2993556	CONN. W/WIRE MINI 4J (L1500) W/FASTON
ES1	EF02233	CO-09C-N2R0-322 (PH)
ES2	EF02242	CO-10C-N2R0-262
ES3	EF02253	CO-06C-N2R0-152 (PH)
ETU1	2979174	PLUG WITH COAXIAL CABLE
ETU2	2979172	MINI PLUG WITH COAXIAL CABLE
EVMC	EF04061	C0-03C-C2R5-651(CYR)
EY1	2908824	8J CONNE.L=750
EY2	2973744S	4J CONNE. L=750
E107	2958351	CONN. W/WIRE MINI 2J
E10	2776542	MAG-VM(C-C)NON6P
E11	3811322	DY INSULATOR
⚠E12	BY00441	DY-V80-6.7SS(3.00)
E301	HL00213	REMOTE CONTROL CLU-952MP
⚠E801	2698671	CPT SOCKET
⚠E831	2698671	CPT SOCKET
⚠E861	2698671	CPT SOCKET
E9BN	4520883	3x12 SCREW WITH WASHER
E9DN	4520883	3x12 SCREW WITH WASHER
E9DW	4269926	WASHER
E9IN	4520883	3x12 SCREW WITH WASHER
E9IS	KL00051	IC SPRING
⚠E901	2972841	AC POWER CORD (FILTER IN)
E902	3772201	AC CORD HOLDER NYLON
E903	3739671	CORD HOLDER
E904	2782611	CENTER PIN
⚠GF01	CJ00071R	SPARK GAP
⚠G701	CJ00071R	SPARK GAP
⚠G801	CJ00071R	SPARK GAP
⚠G802	CJ00071R	SPARK GAP
⚠G831	CJ00071R	SPARK GAP
⚠G832	CJ00071R	SPARK GAP
⚠G861	CJ00071R	SPARK GAP
⚠G862	CJ00071R	SPARK GAP
JA01	EQ00121	PJV-1P-PIN JACK
JS01	ER00121	2L4P LEVER TERMINAL
JY01	ES00001	13P JACK WITH S TERMINALJACK
JY02	ES00022	3P(SW) PIN JACK WITH S TERMINAL
NE02	4520883	3*12 SCREW WITH WASHER
NFP2	3763751	SK BINDER
NF02	4520883	3*12 SCREW WITH WASHER
NK03	4520883	3*12 SCREW WITH WASHER
NK06	4520885	3*16 SCREW WITH WASHER
NK07	4518772	SCREW3X12TAPPINGWITHWSR STEEL
NK08	4105241	CONV.IC SUPPORT BK
NK11	4520883	3*12 SCREW WITH WASHER
NPF2	3763751	SK BINDER
NS01A	4520883	3*12 SCREW WITH WASHER
NS02	3787482	PCB HOLDER (16L)
N001	3738631	PWB HOLDER
N003	3700342	WIRE CLAMP V0
N004	3876031	WIRE CLAMP W 13-20 PA
N005	3728273	PURSE LOCK (8)
N006	3785502	V LOCK 11.5
N007	3785511	V LOCK 16
N101	3443353	SHIELD CASE
N102	3443361	SHIELD PLATE
N153	H810221	PRT SCREW
N155	H830091	CRT SPRING
N201	QR07382	AP63/63B INSTRUCTION BOOK (E)
N202B	3393814	CP-2 LENS (RG)
N202G	3393811	CP-2 LENS (RG)
N202R	3393811	CP-2 LENS (RG)
N402	4520883	3*12 SCREW WITH WASHER
N406	3335321	GROUNDING SPRING
N408	3332021	GX EARTH SPRING STEEL
N502	4520883	3*12 SCREW WITH WASHER
N505	3617451	HC SP LENS COVER
N602	4520883	3*12 SCREW WITH WASHER
N604	4520883	3*12 SCREW WITH WASHER
N702	4520883	3*12 SCREW WITH WASHER
N704	4159425	3X16 TAPPING WITH WASHER
N730	4159427	3X10 SCREW WITH WASHER STEEL
N801	3763751	SK BINDER
PB	2661756	1P PLUG PIN WITH BASE
PCB	ED00512	CP-TAC-L15P-A1
PCC	ED00516	CP-TAC-L20P-A1
PCD	ED00516	CP-TAC-L20P-A1
PCG	2903544	4P PLUG PIN WITH BASE
PCR	2903544	4P PLUG PIN WITH BASE
PCX	ED00512	CP-TAC-L15P-A1 (UX MODELS ONLY)
PDC	2959058	PINPOST 9P PH
PDD	2959053	5P POST PIN 4P TYPE PH
PDG	2959059	PLUG PH PIN POST 10P
PDH	2959054	PINPOST 5P PH
PDS	2959062	PIN POST (PH 12P)
PFJ	2902246	PLUG PIN SUB MINI 7P

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SYMBOL NO.	PART NO.	PART DESCRIPTION
PFT	2666191	4P PLUG PIN WITH BASE
PFV	2902251	11P PLUG PIN
PG01	2959059	PLUG PH PIN POST 10P
PG02	2959059	PLUG PH PIN POST 10P
PI1	2663821	2P SUB MINI PLUG PIN
PL	2903545	5P PLUG PIN WITH BASE
PMB	2665272	4P PLUG PIN WITH BASE
PMG	2665272	4P PLUG PIN WITH BASE
PMR	2665272	4P PLUG PIN WITH BASE
PMV	2675593	15P PLUG PIN (SX MODELS ONLY)
PPA	2902262	PLUG PIN SUB MINI 3P
PPA	2902242	PLUG PIN SUB MINI3P
PP31	2661751	PLUG PIN WITH BASE
PR	2903544	4P PLUG PIN WITH BASE
PSC	2903543	3P PLUG PIN WITH BASE
PSD1	2674631	5P PLUG PIN
PSD3	2674634	8P PLUG PIN
PSD4	2674635	10P PLUG PIN
PSD5	2674636	12P FJ CONNECTOR (TYPE 12PL-FJ)
PSD6	2674631	5P PLUG PIN
PSI1	ED00575	CP-TAC-L18X-A1
PSI2	ED00575	CP-TAC-L18X-A1
PSU1	ED00576	CP-TAC-L20X-A1
PSU2	ED00575	CP-TAC-L18X-A1
PS1	2959058	PINPOST 9P PH
PS2	2959059	PLUG PH PIN POST 10P
PS3	2959055	CONNECTOR-6P(PH)
PVMC	2902262	PLUG PIN SUB MINI 3P
PVM1	ED00566	CP-TAC-L10X-A1
PVM2	ED00566	CP-TAC-L10X-A1
PY1	2675287	PLUG PIN (PH 8P)
PY2	2902263	PLUG PIN SUB MINI 4P
P802	2661756	1P PLUG PIN WITH BASE
P832	2661756	1P PLUG PIN WITH BASE
P862	2661756	1P PLUG PIN WITH BASE
U301	JP01031	3D Y/C UNIT (50SX8B, 60SX12B/13K)
⚠U401	GK00101	SP-05M C057PT811-10
⚠U402	GK00091	SP-12M C120RB804-10
⚠U403	GK00101	SP-05M C057PT811-10
⚠U404	GK00091	SP-12M C120RB804-10
⚠U405	GK00112	SP-7*12DC121RBX000N3
V1B	DE00826	P16LGD00RFA (R) 50"/60"
V1G	DE00825	P16LGD00HLA (G) 50"/60"
V1R	DE00824	P16LGD00BMB (B) 50"/60"
V1B	DE00114	P16LEN00RFA (R) 46"
V1G	DE00115	P16LEN00HLA (G) 46"
V1R	DE00116	P16LEN00BMB (B) 46"
XS01	2786585	CRYSTAL RESONATOR 8.000MHZ
XX01	2791501	CRYSTAL HC-49/U (AP63 ONLY)
XX02	BJ00141	COIL (LC FILTER) 3.58MHZ (AP63 ONLY)
XX03	BJ00112	COIL (LC FILTER) 6MHZ (AP63 ONLY)
X001	2168831	CRYSTAL CSA12.0MTZ
X5A1	2794401	DELAY LINE GLASS 63.5US (AP63B ONLY)
X301	2786685	CRYSTAL CSB500F25
X501	2791501	CRYSTAL HC-49/U
	H310353	DIGITAL CONV. JIG SCREEN (46")
	H310354	DIGITAL CONV. JIG SCREEN (50")
	H310355	DIGITAL CONV. JIG SCREEN (60")
	UE02341	LENS CRT CHASSIS B. ASS'Y (50UX26B/27K)
	UE02342	LENS CRT CHASSIS B. ASS'Y (46UX24B/25K))
	UE02343	LENS CRT CHASSIS B. ASS'Y (60SX12B/13K)
	UE02344	LENS CRT CHASSIS B. ASS'Y (50SX8B)